

NEW ENGLAND PLANT: 18 TO 24 HARCOURT ST.

HARCOURT BLOCK, BOSTON, MASS.

GEO. A. SAGENDORPH, MANAGER AND CASHIER

CABLE ADDRESS: PENNCEIL
A B C CODE, 4th EDITION

THE PENN
Metal Ceiling & Roofing
COMPANY.
LIMITED.

CATALOG OF:
ROOFING:
SIDING: CORNICES:
RIDGING.

HAMILTON & 23RD STS.
PHILADELPHIA PA. U.S.A.

L. LEWIS SAGENDORPH,
President and Manager

SAMUEL D. HAGNER,
Secretary and Treasurer

Cable Address: "Pennceil"

A B C Code, 4th Edition



CATALOGUE



OF

Roofing, Siding, Cornices and Ridging



THE PENN METAL CEILING AND ROOFING CO.
LIMITED

Hamilton and Twenty-third Streets,

Philadelphia, Pa., U. S. A.

INDEX

Working under 83 Patents
Of the Latest Issue * * * * *



Steam Power used on all
Our Machinery * * * * *

EXTERIOR COVERING * * * INTERIOR FINISH

THE _____

Finest Equipped



~AND~

Largest Manufacturing



—Company

IN THE UNITED STATES OF AMERICA

STEAM POWER

For Turning Out Sheet Metal Goods

TERMS AND IMPORTANT NOTES



MEANING OF AGENCIES

AN AGENT for our "*products*" means simply an exclusive customer for the *Territory assigned him or them*, viz.: All inquiries from said Territory thereafter are referred to agency, and we *protect them* in the sale of our goods. Our *responsibility ceases* upon *filling any orders* sent us by agents, except to make good any *short shipments* or *imperfect sheets* that have unintentionally been overlooked. He or they purchase our products at such times and in such quantities as may be required by their trade, naming selling price to their customers; and he or they (agents) are *responsible alone* for the *mechanical work performed*, and we are only responsible for the quality, perfect sheets, and full accompaniment of trimmings.

We *consign no goods* or appoint any one to sell on *commission*, but sell our products *outright*, either to the *consumer, merchant or agent*, to use or sell again.

NOTE

Parties not desiring to buy tools may sell our goods so long as they return tools, according to our rules; but until they buy tools we do not protect them by referring inquiries to them. When we have no agents, we sell direct to the consumer at wholesale price.

IMPORTANT NOTICE

Parties who make inquiry, and after receiving prices of our goods, desire to order, *must observe the following*: We cannot **DEVIATE** or make any **CONCESSIONS**. Our goods are made from **FIRST QUALITY MATERIAL**.

Please observe these rules and there will be no delay in shipping; otherwise we cannot enter the order. We aim to have no bad debts for our paying customers to make good. All are served alike; **QUICK CASH SALES, SMALL PROFITS, AND A I GOODS**.

We are often favored with orders from those who have recently commenced in mercantile business, and not reported by the Commercial Agencies. While such buyers may be most thoroughly responsible, yet our rule is, in filling orders from patrons not favorably rated by the Commercial Agencies, or not sending satisfactory reference with order, to make shipments to our own order, and to send Sight Draft with Bill of Lading attached thereto, through Bank or Express for collection.

The Invoice for the goods, in such cases, is mailed direct to the customer, so he may be duly

advised of the amount of Draft, and the itemized charges. The Bill of Lading is, of course, full evidence of shipment of goods in good order, and we guarantee them to be first-class, as represented in Invoice and Bill of Lading.

To insure the customer of this fact, we authorize the Collectors to hold our draft until arrival of goods, *when our Patrons request them to do so*. Please inform us as to what Bank you prefer Draft sent for collection. We will ship to parties furnishing satisfactory references.

TERMS

Goods sold on cash quotations must be cash on delivery.

Thirty days from date of invoice given parties having good commercial rating, or known to be responsible and prompt.

Parties not well rated or not known to be responsible, and wanting credit, must furnish good references, from whom satisfactory reports as to financial responsibility must be received by us before bill of lading of shipment will be released and credit allowed. Otherwise they must pay our sight draft with bill of lading attached at bank or express office, on arrival of goods ordered, which will enable them to obtain the goods at depot.

Small orders from transient customers must be accompanied with the cash.

Remittances must be made by Philadelphia draft, express, P. O. money order or postal note, and not by personal check, unless the same be certified to as good by the bank on which it is drawn. Exchange, express charges and telegrams must be prepaid.

All accounts subject to sight draft without notice after ten days from maturity.

No extension allowed, nor more than thirty days' credit given, except to parties financially responsible, on note bearing 6 per cent. interest after thirty days.

Special tools loaned for applying our roofing; tools to be returned to us freight prepaid on completion of roof.

Tools must be returned as soon as the roofing is laid, with our return card attached, and bill of lading sent us as proof of shipment, to enable us to trace if lost in transit, and know whose account to credit with tools returned.

Tools detained without special permission will be considered sold and subject to sight draft.

Awaiting your orders,

Respectfully yours,

THE PENN METAL CEILING AND ROOFING CO., Limited

IRON AND STEEL ROOFING

PAINTED OR GALVANIZED

 ORDINARY black Sheet Iron painted has been used for Roofing purposes in both Europe and America for more than a century past, and, by practical tests and comparisons with other roofing materials, has proven itself to be the best for all general purposes where perfect protection from the elements, combined with durability and economy, are very carefully considered.

A new era is now opened in Metal Roofing, by the use of a fine quality of sheet iron or steel, and the application of new and improved devices for fastening the sheets. The enormous quantity of Iron that has been used for roofing purposes during the last half of the present decade evinces the high regard with which it is looked upon by the general public.

They have learned that good sheet iron or steel of suitable weight or thickness will, if properly laid and taken care of, give more satisfactory results than any other known roofing material. It is the most practical; it is the most economical; and is destined to drive from the market Tin, Shingles, Slate and Tiles.

We will say for the information of those who are not familiar with the lasting qualities of iron or steel roofing that there are now in existence in many cities and towns throughout this country iron and steel roofs in excellent state of preservation that were laid between 20 and 50 years ago, and have had no repairs made upon them since, except having been cared for by coating them with metallic paint once within every three to five years.

This sets at rest any claim that they rust out. We have within the last 23 years, or since 1869, laid thousands of iron and steel roofs that are yet in first-class condition and doing the property good service.

All iron or steel roofing sheets are heavily coated with metallic paint on both sides before laying, and as there is no wear upon the under side, a periodical coat of paint on the upper surface will preserve them indefinitely.

Steel Roofing is Fire Proof and its application to a building reduces the rate of insurance fully one-third as a rule, and in towns poorly provided with fire apparatus as much as one-half to two-thirds.

It is a perfect protection where fire originates in adjoining or surrounding buildings, and in the event of a fire originating within a building so covered, the roof timbers alone can be burned, the iron roof proving an effectual barrier to its spreading beyond the building wherein it originated, therefore it is to the interest of everyone to use some style of Steel or Iron Roofing.

Steel Roofing is Lightning Proof. At a recent meeting of the Board of Underwriters of N. Y., held in New York city, they advocated strongly the general use of metal for ice houses, as careful examinations made by them had clearly shown that no ice house covered with metal had ever been injured by lightning; but that several which had been covered with Shingle and Tar-paper roofs had been struck and consumed by the electrical fluid. They therefore made heavy discounts on premiums where such buildings were covered with metal.

The distinguished Prof. Mitchell, as well as other eminent scientists, says that it is impossible for a building to be injured by lightning when covered with iron or steel. Thus an iron or steel roof will render unnecessary the use of lightning rods, thereby effecting a considerable saving.

Its advantages over Tin. Everyone who knows anything of the process of tin manufacture is aware that the base of tin Roofing Plates is iron or steel lightly coated with tin or lead, and that the tin sheets are not solid tin, as many suppose. As now made, these thin iron or steel sheets are but poorly and unevenly coated and badly blistered, thus rendering it necessary to paint them the same as black steel or sheet iron. In fact, the paint is the chief protection. The *Metal Worker* of N. Y. gives the per cent. of tin as from two to four per cent. of the weight of the sheets; one can readily see how thin the coat is by this statement, which is reliable, coming as it does from the representative paper of the Tanners, Hardware and Stove dealers. Again, the weight of I. C. Roofing tin, of which the major part of tin roofs are made, is only about 48 to 54 pounds to the square, while our No. 27 or standard gauge iron or steel roofing weighs from 75 to 80 pounds to the square. Tin sheets are made

in several sizes, but the following two sizes, 14 x 20 inches and 20 x 28 inches, are generally used, but small when compared with iron or steel roofing sheets, which are made in sizes as large as 10 x 2 ft., though the standard length is 8 ft. Thus the chances of leaking are reduced to a minimum by using iron or steel. Again, the end joints or seams fold only $\frac{1}{2}$ inch in laying tin, while they fold $1\frac{1}{8}$ inches in laying iron, and the standing seams on the sides of iron and steel roofing are $1\frac{1}{4}$ inches high, while only $\frac{3}{4}$ inch high in tin. No solder is used in laying iron or steel roofing, but on the other hand this is the only method employed in tightening the joints of tin. By soldering, no provision can be made for expansion and contraction, and it is when sudden atmospheric changes occur that tin for roofing displays its great weakness and the joints and seams are tried. The solder, having a shorter and softer grain, must give way; the results are broken seams and joints and a leaky roof. The weakest point in a metal roof (as a weak link in a chain) measures its strength, and the joints and seams are the weakest points. Iron roofing is open to no such objection, for the joints are wide, heavy and equally as strong as the body of the sheet. A saving of from 75 cents to \$1.00 per square can be made on the wood sheathing of a roof by using iron or steel, as tin to give even indifferent results requires smooth, closely laid boards, while rough sheathing made from 3-inch slats laid 6 inches apart will make a good foundation to lay an iron or steel roof on.

Its advantages over Shingles. Good shingles are a thing of the past. The machine-made shingles of to-day last only about six years, as they are made from inferior timber and the wood fibre is so furled or thrown up in sawing that it absorbs moisture readily and retains it tenaciously, soon rotting them out. The original cost of old-fashioned riven shingles made from good timber, without taking into account the cost of nails and expense of laying, is greater than that of *Iron Laid*. The best of shingles will shrink, leaving crevices and increasing a hundred-fold the chances for leaks. Again—no SHINGLE roof is fire proof.

Its advantages over Slate. Slate for roofing purposes is being most justly condemned on all sides. In the first place, the original cost is too great, and slate gives poor service, as it *cannot resist heat in case of fire, but splits and falls from the building*. Again, it is not possible to drive the nails tightly so as to bind the slates together, through fear of breaking them; thus the slates remain loose enough to allow snow and rain to blow under them, especially so in case of whirling rain storms, such as frequently occur in the South. So long as the rain falls vertically, the water will flow from slate to slate and not leak; but, if the storm is accompanied by wind, slate will always leak. Tiles are open to the same objection. The freezing of this moisture between the slates causes them to crack and finally break entirely off.

Aside from the enormous weight per square of slate (about 600 pounds) and consequent necessity for heavy and expensive roof timbers, Slate roofs require heavy annual expenditures for repairs after each winter. IRON AND STEEL ROOFING DOES NOT. The rule for measuring slate adds about 33 per cent. more to the size of a roof than *Iron and Steel* does.

In the building of very flat roofs we cannot approve; and with buildings having roofs of a pitch of less than 1 inch to the foot we believe no material for roofing will give good results without considerable repairing. But if a light pitch is unavoidable, nothing will give the satisfaction that Iron or Steel having high standing seams, gum-filled caps and counter-swaged cross joint, will. A TIN roof will need constant repairing on account of bursted seams; SHINGLES will not do at all, neither will SLATE, while IRON OR STEEL roofing will only need painting a little more frequently than if laid on a steep roof.

In conclusion we recommend the use of a layer of glazed, O. K. or felt paper underneath iron or steel. This does not add materially to the cost, and prevents condensation as well as preserving a more uniform temperature within the building. The cleanest, best and clearest rain water is gathered from buildings having iron or steel roofs. They are smooth and consequently kept clean by the action of the winds upon their surface, and it is impossible for impurities to gather and be washed into cisterns. The iron paint used is perfectly harmless, being nothing but pure iron ore, combined with linseed oil.

PROTECTION

ECONOMY

DURABILITY

Sheet Metal for Buildings

THE LIFE AND FIRE PROTECTION OF IRON AND STEEL ROOFS AND SIDING

LIGHTNING PROTECTION

INDIANA, PA.

Editor American Miller:—Our old mill was struck by lightning last April, and burned, and in order to avoid a recurrence of that catastrophe we have arranged our new mill now being built, as follows:—It is 40x60 feet, three stories high, with 30-feet one-story engine house, the whole being 90 feet long. The entire building is covered with steel brick on sides and steel standing seam roofing. At each corner and at a point on each long side of the building, midway between the corners, one end of a galvanized sheet iron conductor, nine inches wide and about twelve feet long, is attached firmly to the steel siding. The conductor runs down the foundation and into a trench about three feet deep with 150 pounds of iron and tin scraps and old boiler tubes thrown in on top of it, and the whole buried. Thus we have six conductors grounded in 1,000 pounds of scrap iron. We have no rods of any kind, but rely on the metal covering the building, and the ground connections, to absorb, diffuse and carry off any discharge of electricity that might come our way. We believe the above arrangement cannot be improved on very much, but if any one has any suggestions for improvement we would be glad to hear them.

We will have very convenient arrangements for handling grain from cars on one side and from wagons on the other side of our mill, to our elevator. The sheet steel siding is pressed to resemble bricks, and when painted will present a very firm appearance. The mill is intended to be one of the most complete of its capacity. Yours respectfully, WILSON, ROWE & HETRICK.

All the above was furnished by THE PENN METAL CEILING AND ROOFING CO. Limited.

MARSHALLTON, DEL., August 14, 1888.

To the Editor:—Noticing in the *Iron Age* of the 9th inst. an article, "The Life of an Iron Roof," I would state that my barn is covered with an iron roof which was put on in 1846. This roof is the ordinary standing groove, and, beyond painting every three or four years and some slight repairs caused by the blizzard last March, has cost nothing since it was put on. We have a house in Wilmington that has a similar roof, put on in 1850, and, except an occasional painting, has cost nothing for repairs. An adjoining tin roof of about same size, put on at same time as the iron roof, has required as much painting as the iron roof and cost over \$100 additional on repairs. Both the iron roofs above mention are in perfect condition to-day. Very respectfully, J. R. BRINGHURST.

Mr. W. A. Meninger, of Covington, Ky., who has had upward of thirty-five years' experience in the roofing trade in that vicinity, on the life of an iron roof. Mr. Meninger stated that in 1856 he put up a corrugated iron roof on what was then known as the Clayton Young House, at No. 33 West Fifth Street, Covington, which is now occupied by the Sisters of Notre Dame as a school. This roof did first-class service and gave good satisfaction until about ten years ago, when, upon some changes being made in the building, it was taken off. The material composing it has since been sold to different parties and is now in use for covering various sheds, stables and other small buildings in Covington and vicinity. In 1861 Mr. Meninger covered the Charles Whitcomb House, adjoining the Fourth Street Presbyterian Church, with corrugated iron. This roof is doing perfect service to-day. The expense for repairs, and even repainting, has been hardly worth mentioning.

In 1863, he put a similar roof of corrugated iron on a brick building erected for Mr. George Phillips, who then owned the property, the lot being now occupied by the Fourth Street Presbyterian Church. Mr. Phillips manufactured and prepared the materials himself in his rolling mill. The building has been used as a dwelling house most of the time since then, and this roof has answered its purpose admirably. It is now in a remarkably good state of preservation, considering that it has had no attention in the way of repairing for a number of years.

Mr. Meninger also cited the history of a number of old-time iron roofs with which he is personally acquainted. The old Howe warehouse on Market space had over it for over thirty years an iron roof. After affording complete protection for this long period, and over an almost flat surface, it was

removed about three years ago. The Licking Rolling Mill has a corrugated iron roof which has been on it for over twenty-five years, and to Mr. Meninger's certain knowledge, it has never had a coat of paint since it was first put on. The Kentucky Central Railroad shops in Covington were originally furnished with a corrugated iron roof, which remained for over twenty-three years in a good state of preservation, and was only recently removed on the occasion of some repairs and changes. [Extract from *Metal Worker*.]

MARSHALLTON, DEL., Sept. 17, 1888.

To the Editor:—Since the article, "The Life of an Iron Roof," appeared in *The Iron Age*, I have received numerous inquiries for further particulars concerning the roofs alluded to. If it will interest your readers, please say that the sheathing used was made of stock boards, laid as closely as possible. The under side of the metal had two good coats of paint, but was not otherwise protected, and, as far as I can observe, has not rusted.

The gauge of iron used was No. 26. The cleats on the standing seams are not exposed. Mr. Caleb Marshall, who owned this property from 1837 to 1861, informs me that I made an error in my statement on August 14th, in that the barn roof was put on in 1840, and not in 1846. I have about 75,000 square feet of iron roofing, which, after many years of service, has been very satisfactory.

Yours respectfully,

J. R. BRINGHURST.

HOUSES OF STEEL PLATE

A very favorable account is given in the French papers of the new system of building houses of steel plates, introduced some time ago by M. Danly, manager of the Societe des Forges de Chatelean, and who has set forth its various advantages in an interesting and plausible manner, attracting considerable attention. M. Danly has satisfactorily ascertained that corrugated sheets, of no more than 1 mm. in thickness, are sufficiently strong for building houses several stories high, and the material used allows of quite a variety of architectural ornamentation. The plates thus employed are of the finest quality steel and charcoal iron; and, as they are well painted or galvanized after they have been cut to the sizes and shapes required, no portion is left exposed to the atmosphere. It is asserted that houses constructed in this manner are very sanitary, and that the necessary ventilating and heating arrangements can be readily carried out. [Extract from *Iron Age and Metal Worker*, August 16, 1888.]

DANIELSONVILLE'S CONFLAGRATION

DANIELSONVILLE, CONN.

A few minutes past 10 o'clock on Friday evening, when nearly all our quiet citizens had retired for the night and commenced the business of sleeping, a sudden and wild alarm of fire brought men, women and children into the streets to rush about in grotesque costumes, uttering anxious inquiries. The church bells and fire-gong, the loud cries of "Fire! fire!" the rush and rattle of hose carriages, and the cry of "Charley Bacon's store is on fire!" soon brought several hundred people to the scene of the fire.

It proved to be a small barn belonging to R. R. James, and located in the centre of a nest of other buildings; the M. E. Church, the selectmen's building, C. H. Bacon's large furniture establishment, Kent Darbie's residence, and reaching to where Waldo Bros.' grain and grocery store, George Leavin's building, in which was his dry goods store, W. E. James' drug store and two tenements, M. P. Dowe's fancy goods store with tenement over it, F. O. Flagg's clothing establishment and the Methodist parsonage.

C. H. Bacon had an insurance through the agency of S. W. Crofut on the building of \$2,000. Bert Wood had \$1,000 on stock through the same agency, and Mr. Crofut had also \$150 on the barn. Bacon estimates his stock to have been worth between \$6,000 and \$7,000, on which he had \$3,000 through the agencies of A. G. Bill and George Lloyd.

ONE OUNCE OF PREVENTION IS WORTH MANY POUNDS OF CURE

THE PENN METAL CEILING AND ROOFING CO., LIMITED, PHILADELPHIA, PA.

Mr. Bacon's loss must be very heavy and we should judge him to be about the only sufferer, as the goods of Mr. Wood were not injured by fire at all, and that the insurance would cover the damage done by the water.

We wish to say in conclusion, and for the benefit of all placed in like position, that they may guard against fires, that had it not been for the corrugated iron sheathing which covered the side nearest the fire there could have been no possible chance of saving the building, nor any near at hand.

This sheathing is a wonderful protection, as this case has exemplified, and we most sincerely advise every person to inquire of W. O. Jacobs, who furnishes this material, and you may learn something which may be of fully as much value as an insurance policy.

The Steel Sheathing referred to in this item is what is known as Escalloped Steel Siding, manufactured by THE PENN METAL CEILING AND ROOFING CO., Limited.

BOSTON MANUFACTURERS MUTUAL FIRE INSURANCE CO.,
31 MILK STREET, BOSTON, Aug. 21, 1891.

THE PENN METAL CEILING AND ROOFING CO., Limited,
23d and Hamilton Streets, Philadelphia, Pa.

Gentlemen:—Will you kindly send us samples of your steel brick, together with explanatory circulars? A circular of your company has been handed us by one of our clients, and we wish to know more of the material with a view to recommending its use to several of the clients of this company.

Yours truly, C. J. H. WOODBURY, *Vice-President.*

L. L. SAGENDORPH, President.

BOSTON, Sept. 23, 1891.

Dear Sir:—The President and Vice-President of this Insurance Company have decided to allow any manufacturing company that wish to put up cheap buildings, such as warehouses or extensions, to do so by erecting the frame-work of wood and sheathe over with wood and cover the outside with sheet steel brick.

E. P. HOYT, *Secretary.*

Life and Fire Protection of Steel and Iron as a Covering for Buildings

GONDOLO TANNIN CO., MANUFACTURERS OF CHESTNUT OAK, SUMAC AND QUERCITRON EXTRACTS.
GRAPEVILLE, PA., Oct. 23, 1891.

THE PENN METAL CEILING AND ROOFING CO., Philadelphia, Pa.

Gents:—We have had a fire in our Evaporating House, 33 x 33, and 50 feet high; it was surrounded on three sides by wooden buildings, with exposure of five feet on one side and eighteen on the other two sides. The building is a total loss; it was covered with your steel brick siding; and the total loss on the surrounding buildings was \$2.50, which was broken glass. A better proof could not be asked for of the value of your brick steel siding; and the Insurance Companies say that how we managed to save the other buildings is beyond their comprehension.

Yours truly, W. H. CADWELL, *General Manager.*

THE PENN METAL CEILING AND ROOFING CO., Philadelphia, Pa.

Gents:—Please ship us at once 55 squares of your steel brick siding; also lining paper same as before, and nails. Your prompt attention will oblige.

Yours truly, W. H. CADWELL, *General Manager.*

P. S.—This Company had purchased in 1890 over a car load of Steel Brick from us.

FIRE-FROOF QUALITIES OF CORRUGATED IRON OR STEEL

During the early part of last fall a disastrous fire occurred, by which the works of the Dietic Milling Company, located on the line of the Cincinnati, Hamilton and Dayton Railroad, were destroyed, and no little damage done to the stock of grain in their elevator. The latter construction was covered with corrugated iron. Soon after the fire broke out it became evident that the main building could not be saved, as the flames were beyond control. This building was of brick,

while immediately adjoining it stood the elevator, the relative position of the buildings being shown in the accompanying illustration. In the cut the brick structure is represented as being totally destroyed, while the grain elevator indicates the fire-resisting qualities of corrugated iron, and is a strong testimonial for the sheet iron material. The proprietors of the elevator state that its contents would have escaped injury had it not been that in covering the sides of the elevator the spaces under the projecting rafters were left unprotected. The flames swept up the walls of the elevator without doing any damage, but the open space between the rafters formed an easy entrance for the fire to the interior of the structure. The highly inflammable dust which is always found about grain elevators also facilitated the partial destruction of the grain.

THE NEW YORK CENTRAL AND HUDSON RIVER RAILROAD CO.,
Chief Engineer's Office, Room 21, Grand Central Depot, NEW YORK, April 20, 1889.

MR. E. P. HOYT, Care Penn Metal Ceiling and Roofing Co.

Dear Sir:—In reply to your inquiry of the 19th, I would say that we commenced using your standing lock joint steel roofing about two years ago and now have between three and four hundred squares of it in use. And it has proved so satisfactory that other buildings under construction or contracted for requiring about six hundred squares are to be covered with it by the New York Co., working under Sagendorph patents. And this should be a sufficient guarantee of my opinion of the quality of your roofing material.

Yours most truly, JOHN D. FOUQUET, *Architect.*

PROTECTION AFFORDED BY SHEET-METAL CEILINGS

The Lloyd Iron Roofing and Paint Company, 99 and 101 West Monroe Street, Chicago, have recently had an experience which called their attention to an important point in the use of sheet-metal ceilings. Their office is finished with a ceiling of this kind, which was artistically painted last month in accordance with the canons of "spring cleaning." On the last day of the month a fire broke out in the room above the office, and the Chicago fire department appeared on the scene and deluged the place with water from chemical engines. The fire was speedily extinguished, but the water poured through the floor on to the sheet-iron ceiling and ran through the openings at the walls into the office below. No damage was done to the furniture worth speaking of, and as for the ceiling itself, there was no trace of injury from the flood which poured over it, even the paint requiring no retouching. The firemen were much interested in the test thus given to a sheet-metal ceiling, and the Chicago Fire Department a day or two after ordered one for an engine house. An idea was suggested to Secretary Frank E. Sagendorph in this connection. He had never laid a ceiling with the purpose of keeping water from entering a room; but it was worth taking into consideration. Sheet-metal ceilings can be fastened with cleats nailed on the joists so as to give the ceiling a fall to the back end of a building, and thus provide an inside roof to carry off any water that may come from the upper floors through any accident. Warehouses and stores of all descriptions would thus be provided with a safeguard now lacking and yet which is badly needed in case of fires or water running down from above. Insurance men agree that more property is injured or destroyed by water than by actual fire, and a ceiling laid in this way would often avert heavy damages and interruption to business.

In the North Country—A Pleasant Journey—The Connecticut Upper Valley—A Modern Mill

ON THE BORDER, June 20th.—Beecher's Falls has a saw mill, but not of the typical kind. It is owned and operated by the George T. Comins Company of Concord, and probably has no equal in New England in the completeness of its appointments. Its large and substantial buildings are covered with steel plates and neatly painted. The boiler house is lined with corrugated iron; the buildings have steel roofs, and the absence of all kinds of refuse about the mill reduces the fire risk to the minimum, —a fact which makes possible a very low insurance premium. The buildings are equipped with electric lights; have a powerful Dean steam pump fed from Hall's stream close by, and the employees of the mill are well drilled in the use of fire hose. Three dry houses are situated near the mill; one heated by steam which converts green lumber into dry in six days' time. Altogether the establishment is a model one of its kind, and is an interesting illustration of the perfection to which skill and experience are bringing manufacturing of every kind. [From the *Concord Evening Monitor*, June 22, '91.]

All the Steel and Iron Covering furnished by THE PENN METAL CEILING AND ROOFING CO.—over one and a half Car Loads.

SPECIAL TO OUR PATRONS

Painted or Galvanized Stock. 18 to 28 Gauge

We sell a Square of Standing Seam or Roll Roofing, allowing for Standing Seams (and Cross Laps, on Roll Roofing)

Laps not allowed for Corrugated Roofing or Siding Sheets

All Black Sheet Material Painted both sides, with best Oxide Iron and Linseed Oil, before Shipping

The following rules govern our quotations and shipments:

1st.—**Pressed Standing Seam Steel Roofings.**—Using Separate Cleats, all styles (plain or figured centres). One square of Steel Roofing consists of $6\frac{1}{4}$ sheets with Pressed Standing Seams. Painted both sides, one coat. Each sheet will measure in clear 24 inches wide by 96 inches long, or its equivalent. We furnish 1 pound Dry Iron Paint, $\frac{1}{2}$ pound 1-inch Wire Nails, $1\frac{1}{4}$ pounds Painted Metal Tongue Cleats and one-fifth pound End Cleats to each 50 lineal feet of Roofing Sheets 24 inches wide. Applies to all Standing Seam Roofing (any style of Cleat).

2d.—**Extension Cleat Pressed Standing Seam Steel Roofing.**—One square of Steel Roofing consists of 50 lineal feet of Roofing Sheets 24 inches wide (with Extension Cleats). Painted both sides, one coat. Each sheet will measure in the clear 24 inches wide by 96 inches long, or its equivalent. We also furnish 1 pound Dry Iron Paint, $\frac{1}{2}$ pound 1-inch Barbed Wire Nails, and one-fifth pound End Cleats to every 50 lineal feet, 24 inches wide.

3d.—**Roll and Cap Tongue Cleats, or Roll (Straight Cleat) Steel Roofing.**—Using Separate Cleats (plain or figured centres). One square of Roll and Cap Roofing consists of 50 lineal feet (sheets hooked and swaged together). Painted both sides, one coat, and rolled for shipment; will lay 24 inches in the clear by 50 feet long (100 square feet). We furnish 50 running feet of Metal Capping for covering standing seam (in Roll Roofing no caps are furnished), $1\frac{1}{4}$ pounds Metal Cleats, 1 pound Dry Paint, $\frac{1}{2}$ pound Barbed Wire Nails to every 50 lineal feet (swaged together). Applies to all styles we make.

4th.—**V Crimped Steel Roofing.**—One square of V Crimped Roofing consists of $6\frac{1}{4}$ sheets of Crimped Sheets, painted both sides, one coat. Each sheet will measure in the clear 24 inches wide by 96 inches long, or its equivalent. We furnish 1 pound Dry Iron Paint, 1 pound Wire Nails $1\frac{3}{4}$ inch, and 50 running feet of Wooden V Strips and one-fifth pound End Cleats to every 50 lineal feet Roofing Sheets, 24 inches wide.

5th.—**Corrugated Steel Roofing and Siding.**— $2\frac{1}{2}$, $1\frac{1}{4}$, $\frac{5}{8}$, $\frac{3}{8}$, and $\frac{1}{8}$ inch, or Beaded, centres. One square of Corrugated Sheets consists of sheets in any length from 1 to 10 feet, by 27 or 28 inches wide, to make 100 square feet of Corrugated surface, painted both sides, one coat. Each sheet will measure 27 or 28 inches wide by 1 to 10 feet long. We furnish 1 pound $1\frac{3}{4}$ -inch Wire Nails and 1 pound Dry Mineral Paint to every 100 square feet of Corrugated surface. No laps on sides or ends of sheets allowed; for side laps add 10 per cent., cross laps add 4 per cent.

6th.—**Sheet Steel Clapboards (or Weather Boarding).**—One square of Steel Clapboards consisting of 50 lineal feet, 25 inches wide or its equivalent. Painted both sides, one coat. Each sheet will measure out to out 25 inches wide by 1 to 10 feet long. We furnish 1 pound 1-inch Wire Nails and 1 pound Dry Mineral Paint to every 50 lineal feet, 25 inches wide.

7th.—**Sheet Steel Brick, Siding and Wainscoting.**—One square Brick Siding consists of 5 sheets (imitation Brick), $96\frac{1}{2}$ inches long by 30 inches wide, or its equivalent, painted both sides, $\frac{3}{4}$ pound $\frac{3}{8}$ -inch Wire Nails, and 1 pound English Red Mineral Paint. Applies to both styles brick.

8th.—**Cluster Steel Shingles.**—One square of Steel Shingles consists of 7 sheets 81 inches long, or $4\frac{3}{4}$, 10 feet sheets by 25 inches wide, or its equivalent. Each sheet will measure in the clear (allowing side laps and cross seams) $6\frac{1}{2}$ feet by 25 inches, or its equivalent, painted both sides, provided with 1-inch flat margin, pressed Standing Seams, or Double Beaded Edges at sides of sheets, $1\frac{1}{4}$ pounds Metal Cleats, 1 pound Dry Paint, $\frac{1}{2}$ pound 1-inch Wire Nails, one-fifth pound Lead Washers for End Joints (Beaded Edges, Nails, Paint and Lead Washers only).

9th.—**Roll Steel Roofing, with Metal Caps and Gum Filler.**—Trimnings furnished are same as in Roll and Cap, except we send Ground Metal Powder and Liquid Gum for mixing and filling the Caps, viz.: to every 100 square feet of Roll and Cap Roofing—one-tenth gallon Liquid Gum; 1 pound Metallic Powder.

The above rules govern our shipment and claims. Patrons making claims for short shipments must examine their goods before using them and compare as above, and, if any shortage is found, make complaint at once, so that we can make good the shortage. No claims allowed after goods have been worked into roofing on the building, as we are not responsible for miscuts or bad workmanship, but do hold ourselves for full shipments of sheets and trimmings as above named.

We do not sell at wholesale prices and measure the roof after it is laid, but give you prices on these goods in quantities with the necessary trimmings, as above stated; and if they are short when received, we will cheerfully make up the loss, but in no instance will we make the allowance after the same has been used, and by some mismanagement the workman fails to cover all that the buyer would wish. So please bear this in mind, and upon the receipt of the goods, see that it tallies with our list on invoice. If any discrepancy appears, notify us, and the shortage will be made good.

AMERICAN GAUGE

WEIGHT OF BLACK SHEET STEEL Per 100 Square Feet Flat			
No. Wire Gauge	Lbs.	No. Wire Gauge	Lbs.
18	200	24	100
20	150	26	75
22	125	28	62½

Note! All Our Black Sheet Goods are Painted on Both Sides,
before Shipping, if not Otherwise Specified

GALVANIZED SHEETS

PAINTED ONLY WHEN REQUESTED BY PURCHASER, AT EXTRA CHARGE

WEIGHT OF PAINTED SHEET STEEL Per 100 Square Feet Painted and Manufactured in'o different Roofing and Siding devices			
Wire Gauge	Lbs.	Wire Gauge	Lbs.
18	220	24	111
20	165	26	83
22	138	28	70

We keep in stock from Standard (28) to 18 Gauge, in Widths of 26 inches to 30 inches; Lengths of 1 foot to 10 feet
Either Black, Painted or Galvanized. We sell by the square (10x10) or by the pound

Weights of Galvanized Sheets, Flat and After Corrugating

GALVANIZED SHEETS		
WEIGHT		PRICE
Wire Gauge	Per Square Foot	Per Pound
28	About 12½ oz.	In the flat, 17 cents
27	" 13½ "	" " 16 "
26	" 14½ "	" " 15 "
24	" 18½ "	" " 14 "
22	" 22½ "	" " 13 "
20	" 26½ "	" " 13 "
18	" 34½ "	" " 13 "

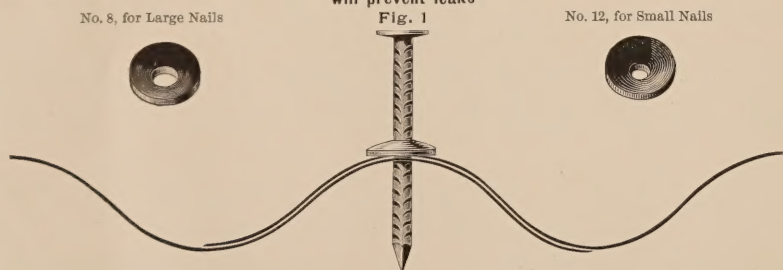
Subject to the trade discount

WEIGHT AFTER CORRUGATING	
Wire Gauge	Per 100 Square Feet
28	About 83 pounds
27	" 93½ "
26	" 99 "
24	" 127 "
22	" 150 "
20	" 184 "
18	" 236 "

Subject to our regular sheet discount

LEAD WASHERS

Used when putting on Roofing and Siding, Corrugated V Crimped, or Cluster Shingles as shown in the cut below, will prevent leaks



No Corrugated V Crimped or Cluster Shingle Roofing ought to be laid without using this important and small additional cost.

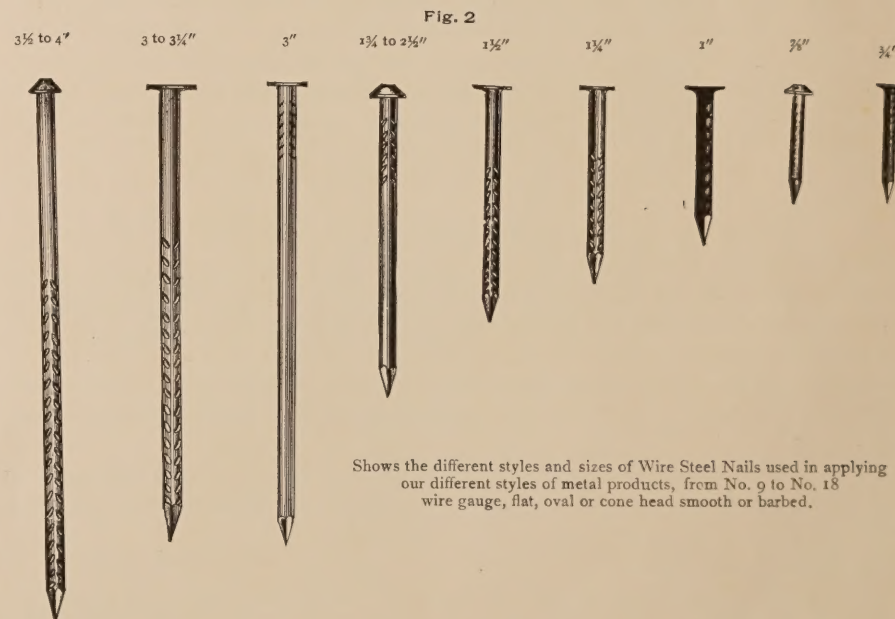
These Washers make an **absolutely water-tight joint** on any surface, whether concave, convex or flat; they also **prevent rust** below the nail-head and the head from cutting into the sheet, thus making a more durable job. See page 19 of Catalogue for styles of Roofing to use these little preservers.

Read the following and find out how many and what kind you need; do not let the **small cost** additional per square prevent you from having a perfect job.

Put up in boxes containing 100 pounds each. One pound contains 325 Washers, and will put on 2 to 3 squares.

Hole in the No. 8 Washer is ⅝ of an inch in diameter; in the No. 12 Washer is ⅜ of an inch.

SEND FOR SAMPLES



Shows the different styles and sizes of Wire Steel Nails used in applying our different styles of metal products, from No. 9 to No. 18 wire gauge, flat, oval or cone head smooth or barbed.

Corrugated Sheets, for Roofing, Siding and Ceiling, also Covering Doors, Shutters, Awnings and Arches

PATENTED MAY 25, 1886. 342,387 AND 342,388, NOVEMBER 18, 1887

MADE FROM BLACK, PAINTED, AND GALVANIZED IRON OR STEEL SHEETS

PRESSED CORRUGATED SHEETS



We manufacture PRESSED Corrugated Sheets only. ROLLED Corrugated Sheets cannot be depended upon, where accuracy, uniformity and economy are required, and in furnishing quotations on this style of metal goods, we should be allowed about 5 per cent. advance over quotations from other firms which manufacture Rolled Corrugated Sheets. This advance is doubly saved in many ways :

First.—By economy in laying, as Pressed Corrugated Sheets can be laid in one-half the time that is required for laying Rolled Sheets.

Second.—By accuracy of fit, as all corrugations are uniform and require no trimming. The end and side laps fitting squarely and without waste.

Please bear the above in mind when obtaining prices on corrugated goods, and if fairly compared, you will find that our Company furnishes a better class of Corrugated Sheets than any other company, at same prices.

When calculating amount of Corrugated Sheets to cover a given space, for roofing, it is necessary to allow for the extra lap at the sides and ends. Generally the allowance is as follows: For siding, on side lap, one-half corrugation, and at end lap, $1\frac{1}{2}$ inches. For roofing, the lap we provide for is $1\frac{1}{2}$ corrugations at sides and 3 to 4 inches at the ends. A lap of one and a half corrugation will answer when the rafters are 20 feet or longer, and the pitch is 2 inches or more to the foot, and by nailing every 8 or 10 inches on side lap, although we do not recommend the use of corrugated sheets for roofing, very strongly, but our finishing lap for roofing is the most reliable, with corrugated sheets.

When used without sheathing boards, the studding should be framed to measure from centre to centre, to correspond with covering width of sheet, or, if preferred, put the studding 6 to 8 feet apart and nail the sheets to the purlins, placing purlins 2 to 4 feet apart.

Studding 2 x 4 inches will answer usually, placed 25 inches from centre to centre for No. 28 (or standard gauge) 26 and 24 gauge. Nos. 22, 20, and 18, 24 inch centres.



See our Table of Covering Distance, per each Gauge, page 9

Fig. 3



Shows our Corrugated Lap for Roofing, 25-inch centres for 28 and 26 gauge. See table, page 9.

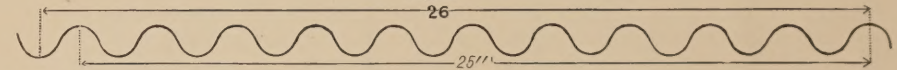
Fig. 4



Shows our Corrugated Lap for Siding, 26-inch centres.

TWO AND ONE-HALF INCH CENTRES CORRUGATION

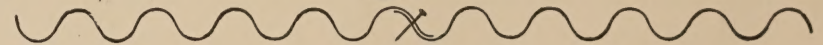
Fig. 5



Shows 11 1/2 corrugations to the sheet.

Our 2½ centres Corrugated Iron Covers, as per above cut. When used for siding, each sheet will cover 26 inches in the clear, lapping ½ corrugation, and nailing at point illustrated in Fig. 6

Fig. 6



Shows how to lap side joint, and where to nail when used as siding.

When used as roofing, this style affords one of the most effectual water-proof side joints or laps ever produced in Corrugated Sheets, as in Fig. 7, at the same time giving the greatest economy by saving material, while in other styles, to effect the same security against leaks, two full corrugations must be used.

Fig. 7



Shows how to make side lap when used as roofing, and where to nail.

This will require more material or a loss of surface exposed of $2\frac{1}{2}$ inches. Our sheets have $11\frac{1}{2}$ corrugation, covering surface laid as siding 26 inches, as per Fig. 7. When used as roofing, each sheet will have covering surface laid, 24 to 25 inches with lap equal to two full corrugations, and perfect security against leaks, at the same time presenting more covering surface than any other $2\frac{1}{2}$ Corrugated Sheets, having only one corrugation lap.

 The above applies to Standard and 26 Gauges. See table, page 9, for covering surface on heavier gauges.



TABLE OF WIDTHS
Of Sheets after being Corrugated

The take-up is $\frac{3}{8}$ to $1\frac{1}{4}$ inches to the lineal foot, flat.

	Width of Sheet
$2\frac{1}{2}$ -inch centres	27 inches
$1\frac{1}{4}$ " " " " " " " " " " " "	$27\frac{1}{4}$ "
$\frac{5}{8}$ " " " " " " " " " " " "	$27\frac{1}{2}$ "
$\frac{3}{8}$ " " " " " " " " " " " "	$27\frac{3}{4}$ "
3-16 " " " " " " " " " " " "	29 to 30 "

The spring on light gauges, 28 to 24, compensates from $\frac{1}{2}$ to 1 inch gain over the take-up, and on 22 to 16 gauge $\frac{1}{4}$ to $\frac{1}{2}$ inch.

CORRUGATED SHEETS

PAINTED OR GALVANIZED

And the Different Attachments Used in
Applying Same



TABLE OF WEIGHTS
In the Flat, Sheet Steel or Iron

Table of weight per 100 square feet, flat.

28 gauge	62½
26 " " " " " " " " " " " "	75
24 " " " " " " " " " " " "	100
22 " " " " " " " " " " " "	125
20 " " " " " " " " " " " "	150
18 " " " " " " " " " " " "	200

TABLE OF WEIGHTS AND MEASUREMENTS OF CORRUGATED SHEETS, FROM No. 18 GAUGE TO STANDARD (OR 28) GAUGE, INCLUSIVE

Corrugated Sheets made from sheets of a uniform width, and upon the same sized dies, will vary considerably in width after being corrugated, according to the gauge, as will be seen below. This difference amounts to as much as $\frac{3}{4}$ inch in the gauges from Nos. 18 to 28. Heavy gauge sheets have little or no spring, but as the gauge becomes lighter, the amount of spring increases, making the above mentioned variation of $\frac{3}{4}$ inch between the gauges named.

All our Corrugated Sheets are made from 30-inch wide stock, giving $11\frac{1}{2}$ Corrugations to each sheet. Sheets are 27 to 28 inches wide after Corrugating, governed by the size of Corrugation. Laps at sides to the weather $1\frac{1}{2}$ Corrugations, when used for roofing, and one-half Corrugation when used for siding, if over close sheathing. Sheets cover as follows, and weight per square (100 square feet), no allowance for laps.

BEAR IN MIND WHEN COMPARING PRICES

Viz.: Weights and widths of sheets after laps are made. Our basis of prices on 30-inch stock, flat, 27 and 28 inches wide, from out to out to every sheet after Corrugating, and allows for no cross or side lap (one pound nails, one pound dry paint), to each 100 square feet of Corrugated surface, extra charge. Basis of this table on $2\frac{1}{2}$ -inch centres Corrugation.

	(OUT TO OUT.)		(ROOFING.)	(SIDING LAP.)		Lbs.
28 (or standard) gauge, after Corrugating, width of sheet . 27 inches		Covering width, Roofing Laps made, $1\frac{1}{2}$ Corrugations . $24\frac{1}{2}$ inches.		. 26 inches.	Weight, per square, after corrugating	70
26 " " " " " " " " " " " "	. 27 "	" " " " " " " " " " " "	. $24\frac{1}{4}$ "	. $25\frac{3}{4}$ "	" " " " " "	83
24 " " " " " " " " " " " "	. 27 "	" " " " " " " " " " " "	. $24\frac{1}{4}$ "	. $25\frac{3}{4}$ "	" " " " " "	111
22 " " " " " " " " " " " "	. 27 "	" " " " " " " " " " " "	. 24 "	. $25\frac{1}{4}$ "	" " " " " "	138
20 " " " " " " " " " " " "	. 27 "	" " " " " " " " " " " "	. 24 "	. $25\frac{1}{4}$ "	" " " " " "	165
18 " " " " " " " " " " " "	. 27 "	" " " " " " " " " " " "	. 24 "	. 25 "	" " " " " "	220

This table is made up on a basis of width and Standard (or 28) to 18 gauge weight, viz: 27 to 30 inches wide, 70 to 220 pounds to the square. We furnish, per square of $2\frac{1}{2} \times \frac{3}{4}$, $1\frac{1}{4} \times \frac{1}{2}$, $\frac{5}{8} \times \frac{1}{4}$, $\frac{3}{8} \times \frac{1}{8}$, $\frac{1}{8} \times \frac{1}{8}$ inches, Corrugated Sheets, as follows: (Any of the above gauges, cover to weather after lapping $1\frac{1}{2}$ Corrugations at side, 24 to $24\frac{1}{2}$ inches) in width (lapped $1\frac{1}{2}$ Corrugations). The lineal feet of sheets, 27 inches wide, after corrugating that makes 100 square feet, (governed by the size of Corrugation used,) as per table above.

It is our custom and rule in selling Corrugated Sheets by the square to furnish a number of sheets, the total superficial measurement, (allowing no side or cross lap,) of which equals 100 square feet. That is, without allowance for end lap or side lap. This is especially proper in Corrugated Sheets, which are used for so great a variety of purposes, varying so much in requisite amount lapped. For amount needed to roof a building, add to net measurement of roof 13 per cent. for 28 to 24 gauge; add 15 per cent. for 22 to 16 gauge. For siding, 12 per cent.; this covers the loss of side and end laps, and eaves projection.

CORRUGATED SHEETS PAINTED OR GALVANIZED—(American Gauge) No. 28 to 18 Gauge

Length, 1 to 10 feet; outside width after corrugating, 27 to 28 inches

Fig. 9



Shows our corrugated side lap for roofing, 24-inch centres for 24, 22 and 20 inch gauge.

Fig. 8

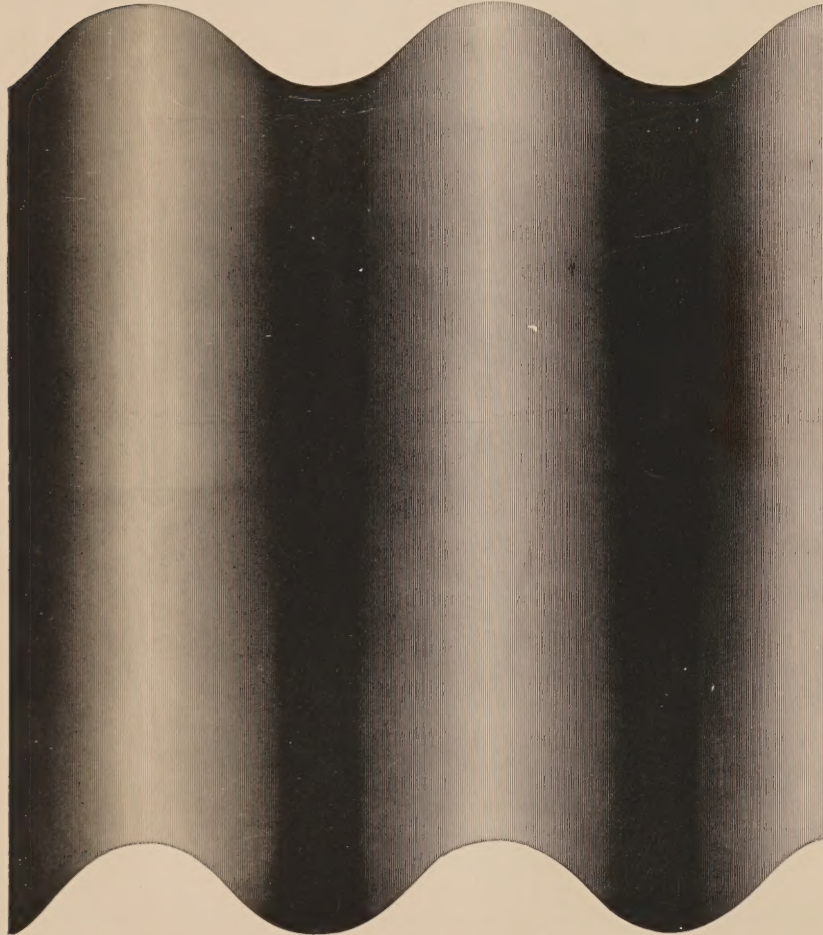


Fig. 10



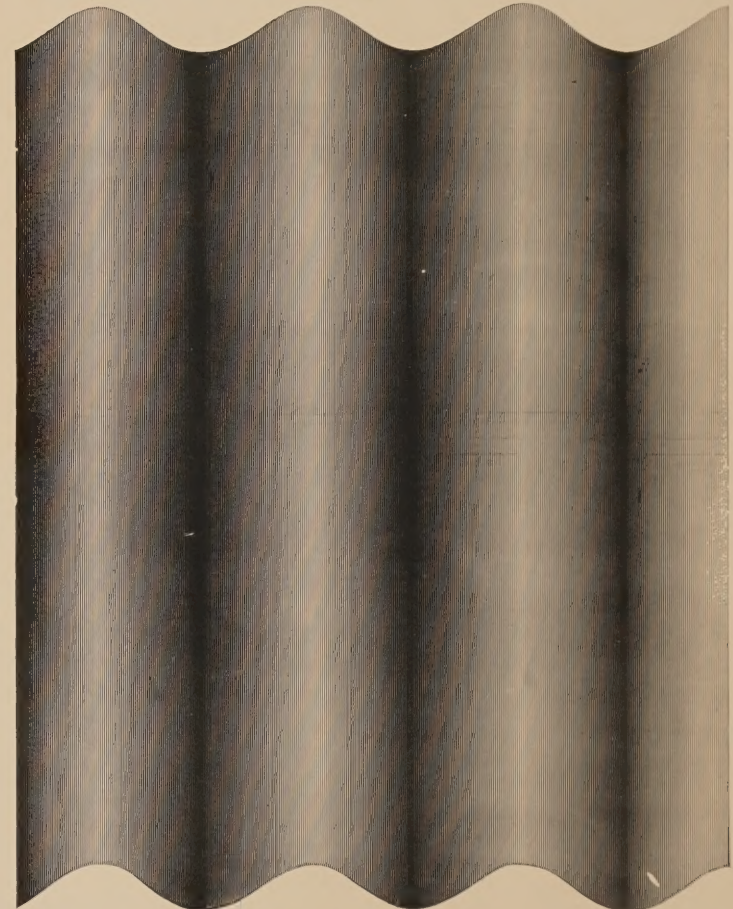
Full size sectional view, 2 1/2-inch centre.

Fig. 12



Shows our corrugated side lap for siding, 26-inch centres.

Fig. 11



Full size, 1 1/4-inch corrugated sheets.

Fig. 13



Full size sectional view, 1 1/4-inch centres.

Full size, 2 1/2-inch centre, corrugated sheets. All sheets made from 30-inch wide stock in the flat; 27 inches wide after corrugating. Length, 1 to 10 feet; side lap, 1 1/2 corrugations; end lap, 1 to 4 inches.

WEIGHT PER 100 SQUARE FEET CORRUGATED SURFACE—AMERICAN GAUGE

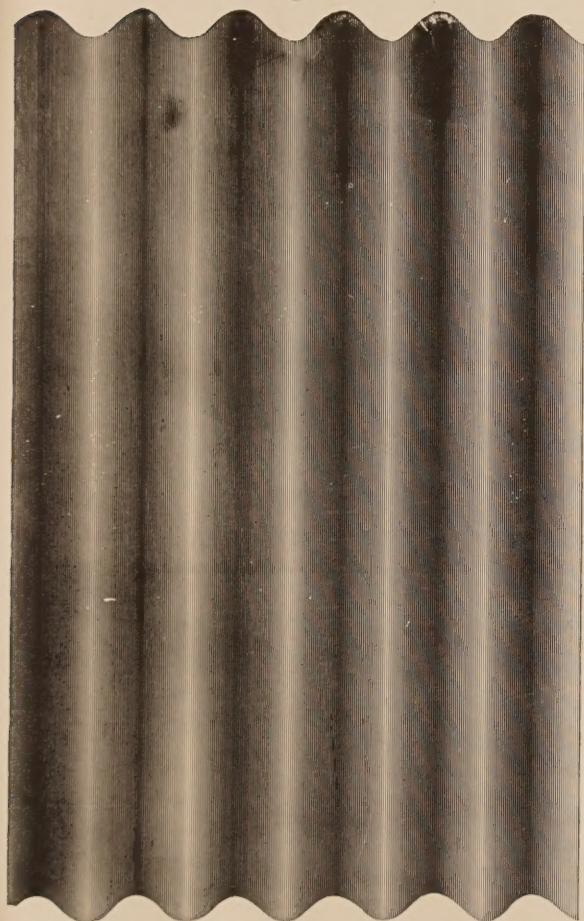
PAINTED STOCK			PAINTED STOCK			GALVANIZED STOCK			GALVANIZED STOCK		
27 Gauge		70 pounds	22 Gauge		138 pounds	28 Gauge		83 pounds	22 Gauge		154 pounds
26 "		83 "	20 "		165 "	27 "		93 "	20 "		185 "
24 "		111 "	18 "		220 "	26 "		99 "	18 "		237 "
						24 "		127 "			

CORRUGATED SHEETS PAINTED OR GALVANIZED

(American Gauge) Numbers 28 to 18

Length, 1 to 10 feet. Outside width after corrugating, 27 and 28 inches. Made crosswise of sheets, the take-up is about 1 1-4 inches to the lineal foot

Fig. 14



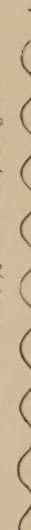
Full size sectional view, 5/8-inch centres.



Fig. 15



Full size sectional view; 3/8-inch centre, corrugated.



Full size, 3/8-inch centre, corrugated sheets. 28 inches wide by 1 to 6 feet long. No heavier than 22 gauge made.

Full size, 5/8-inch centre, corrugated sheets. Length, 1 to 8 feet; outside width, 28 inches after corrugating. No heavier than 20 gauge corrugated.

WEIGHT PER 100 SQUARE FEET CORRUGATED SURFACES

PAINTED STOCK			GALVANIZED STOCK		
AMERICAN GAUGE			AMERICAN GAUGE		
28 Gauge	70 pounds		28 Gauge	83 pounds	
26 "	83 "		27 "	93 "	
24 "	111 "		26 "	99 "	
22 "	138 "		24 "	127 "	
20 "	165 "		22 "	154 "	
18 "	220 "		20 "	185 "	
			18 "	230 "	

CORRUGATED SHEETS, PAINTED OR GALVANIZED

AMERICAN GAUGE. No. 28 TO 24

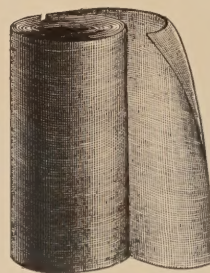
Fig. 16



Full size of beaded sheets—3 or 2¼ inch space between. ⅜ or ⅝ inch centre beads.
29 inches wide, 1 to 10 feet long.
No heavier than 24 gauge made.

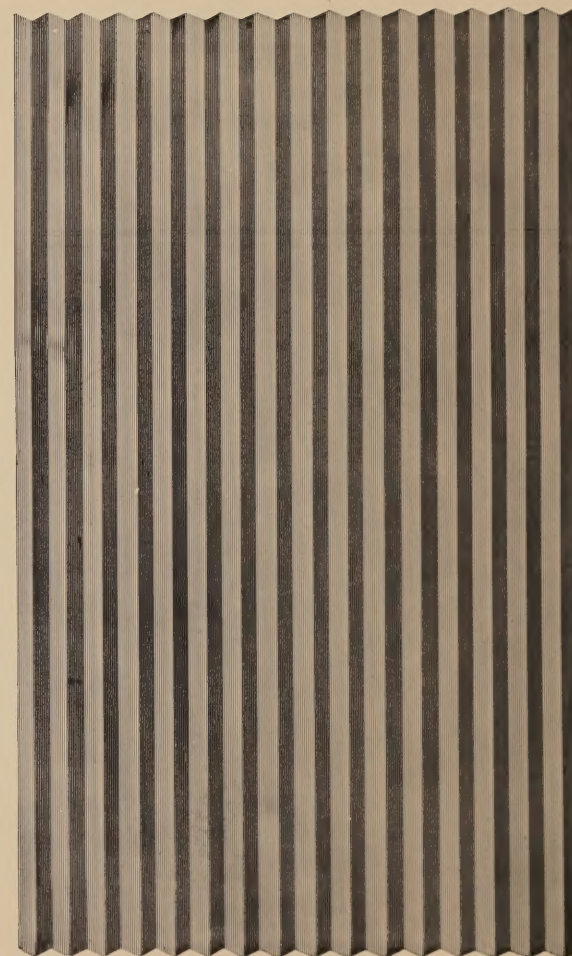
Full size sectional view; ⅝ inch beads; 3 or 2½ inch centres.

Fig. 323



For lining valleys or gutters.
Made from painted steel, gal-
vanized or tin.
In rolls, 1 to 100 feet long.
Width, 6 inches to 30 inches.

Fig. 17



Full size sectional view; 3-16 inch centre, crimped.

Full size, 3-16 inch centre, crimped.
Sheets, 30 to 36 inches wide by 1 to 10 feet long.
No heavier than 24 gauge made.
Lengthwise or crosswise of sheets.

COPPER AND ZINC SHEETS, REEDED

The take-up in corrugating or reeding is about $1\frac{1}{4}$ inches to the lineal foot.

Made in three sizes of reeds, viz. $\left\{ \begin{array}{l} 3-8 \\ 5-8 \\ 3-16 \end{array} \right.$ Centre of reeds, crosswise or lengthwise, 6 feet or less, 8 feet or less, 10 feet or less.

THE PENN METAL CEILING AND ROOFING CO., LIMITED, PHILADELPHIA, PA.

Fig. 18



Shows $\frac{3}{8}$ corrugation, lengthwise, see page 11, fig. 15.
Sheet reeded its entire surface.

Fig. 19



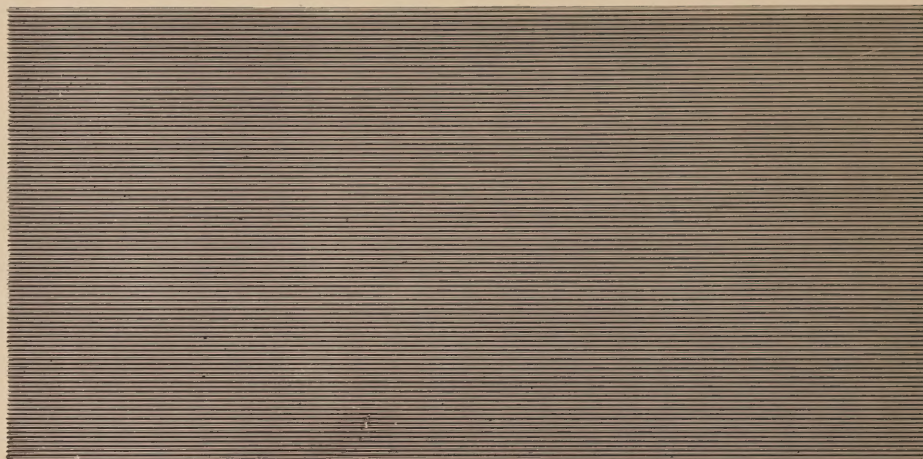
Sheet reeded with one flat edge margin.

Fig. 20



Sheet reeded with both outside edges left flat.

Fig. 21



3-16 centres, 4 to 10 feet long; 20 to 36 inches from out to out.

Crosswise, see Fig. 22.

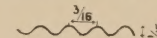
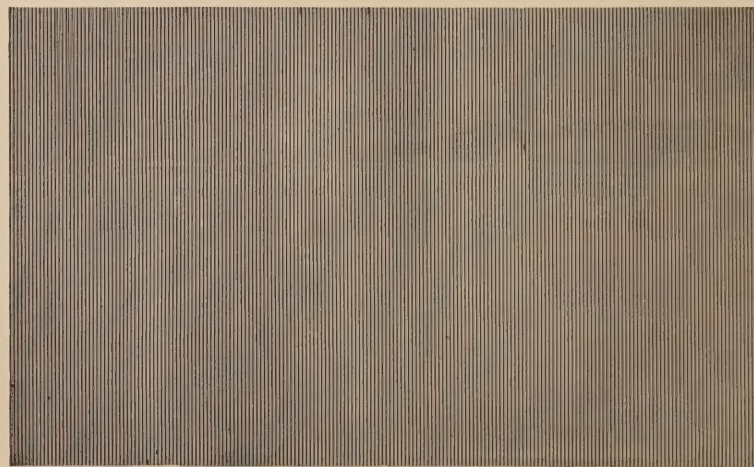
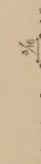


Fig. 22



Shows 3-16 Corrugations; 36 inches wide, 9 feet long.

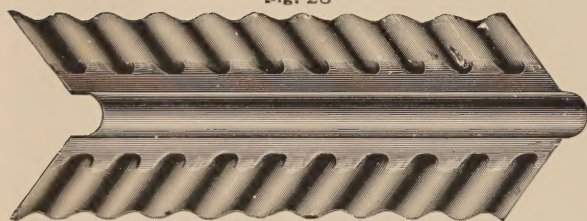
We make the crimp quite shallow in this size for cornice work; it makes the sheet flat and shows no wave in the cornice after it is formed.



Combing Cap and Flashing, with Corrugated or Flat Margins, to be Used With or Without Corrugated Wood Filler

GALVANIZED OR PAINTED STOCK, 28 TO 18 GAUGE

Fig. 23



Shows 2 1/2 inch Corrugated Steel Combing Cap.

Fig. 24



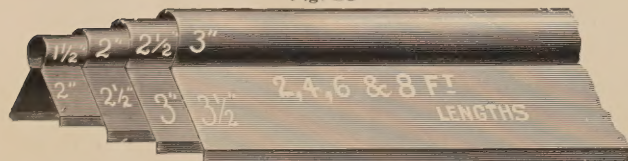
2 1/2-inch Corrugated Steel crosswise flashing.

Fig. 25



2 1/2-inch Corrugated Steel lengthwise flashing.

Fig. 29



Shows Sections of Commercial Combing Cap.

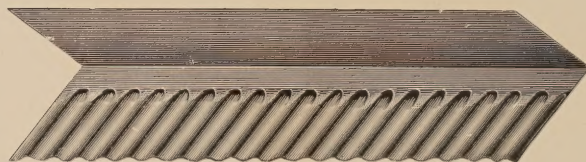
1 1/2-inch roll, 2-inch apron, up to 3-inch roll and 3 1/2 to 12 inch apron.
Girth of stock, 8 to 30 inches.

Fig. 26



Shows 1 1/4-inch Corrugated Steel Combing Cap.

Fig. 27



1 1/4-inch Corrugated Steel crosswise flashing.

Fig. 28



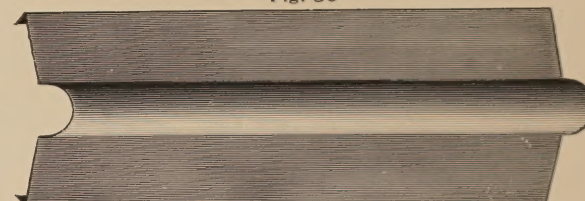
1 1/4-inch Corrugated Steel lengthwise flashing.

Fig. 324



Painted Steel, per lineal foot 8 cts.
Galvanized Steel, per lineal foot 12 "
Ends charged as one foot.

Fig. 30



Shows Metal Combing Cap, largest size, made from 24-inch stock; 1st flange, 1 inch; 2d flange, 8 inches, oval centre. Diameter, 3 inches.

Fig. 31



Metal Combing Cap, medium, made from 12 and 14-inch stock. 1st flange, 1 inch; 2d flange, 3 and 4 inches, oval centre. Diameter, 1 1/2 to 2 inches.

Fig. 32



Metal Combing Cap, small, made from 8 to 10-inch stock. 1st flange, 1/2 inch; 2d flange, 2 to 3 inches, oval centre. Diameter, 1 to 1 1/2 inches.

Fig. 33



Metal Combing Cap, special, made from 6 to 8-inch stock. 1st flange, 1/2 inch; 2d flange, 1 1/2 to 2 1/2 inches, oval centre. Diameter, 1 inch.

CORNER BOARDS, MOULDING STRIPS, ETC., TO BE USED WITH CORRUGATED SHEETS, CLAPBOARDS FOR STEEL BRICK SIDING

Fig. 34
Patented May 31, 1887



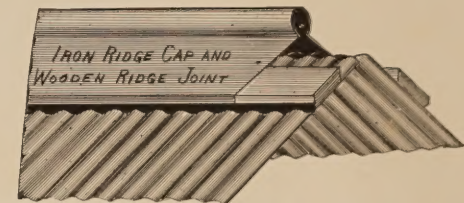
Shows manner of finishing the corner of building, with Metal, made convex or concave.

Fig. 40



Shows 5/8 Oval Centre, crosswise, for belt line in siding when desired trim top and bottom mould and table. See Fig. 41.

Fig. 43



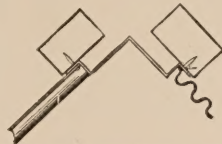
Shows application of our joint of Corrugated Wood and Metal Cap on Corrugated Metal Roofing at ridge.

Fig. 35



Shows application of corner board to corner of building.

Fig. 36



Shows application of corner board to inverted corner.

Fig. 37



Shows inverted Corners.

Fig. 38



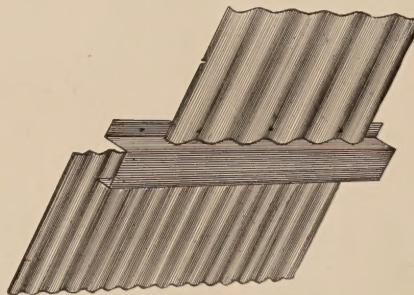
Shows application of corner board, used with Corrugated sheets

Fig. 39



Shows medium size Moulding, to be used as in Fig. 41.

Fig. 41



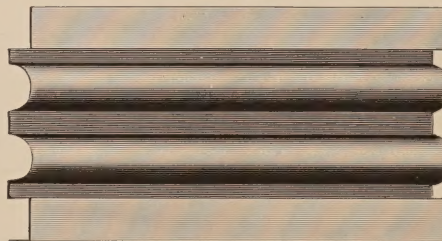
Shows Metal Strip Moulding finish, for Corrugated Sheets. When used as siding, makes a neat finish.

Fig. 44



Shows our joint of Corrugated Wood, to be used between the Corrugated Metal Roofing and Combing Cap on each side of ridge of the roof.

Fig. 42



Shows large size Fancy Moulding, to be used as in Fig. 14.

This joint (Figs. 44 and 43), is flat on one side, going next to the cap, and corrugated on the other side to fit the corrugation of the roofing.

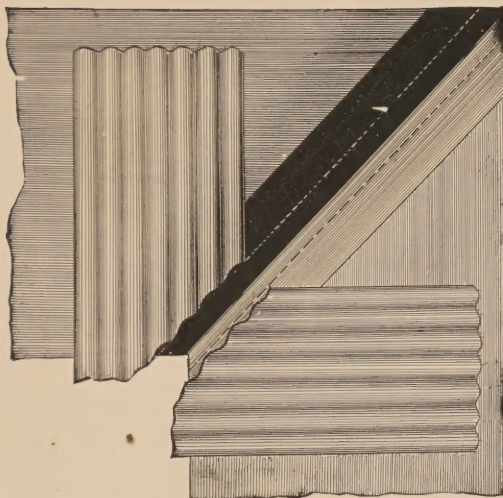
This joint is just the thing to use where corrugated Roofing butts against a wall where flashing is to be used; the flashing to be nailed over the joint to the wall.

Parties using Metal Roofing, either flat Standing Seam or Corrugated Sheets, do not use the Combing Cap, as a rule, and in many applications of roofing there has been a great deal of complaint in the ridge finish, both at hips and comb, also in flashing at side walls, and abutment of one building against another, requires flashing. A perfect job can only be made by using some of the many styles herein shown, and applying our mode of corner flashing, using fibre patch and Iron Cement paste, as per cement directions. Also see page 17, Fig. 1, and page 19.

OPENINGS IN ROOFING, HOW PREPARED AND FITTED

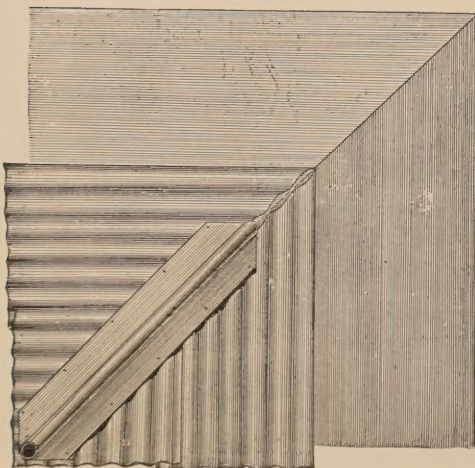
CORRUGATED VALLEY AND HIP COVERINGS

Fig. 45



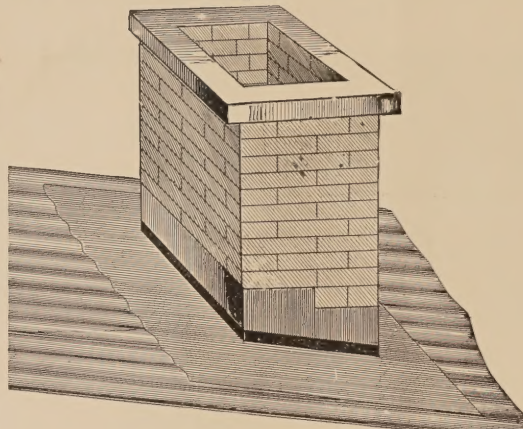
Shows how to cut and apply Corrugated Sheets to valleys.

Fig. 46



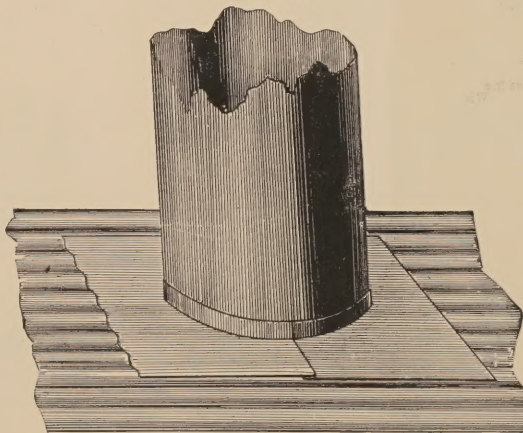
Shows how to apply Corrugated Sheets on hips, and covering same with capping.

Fig. 47



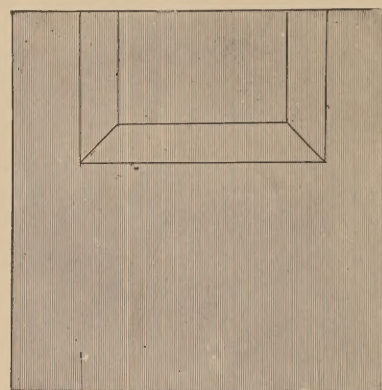
Shows flat sheets fitted and flashed to square chimney opening and Corrugated Sheets. Laid as above, the upper side of flat sheet slips under corrugations; the lower side of flat sheets runs over the corrugated sheets, six or eight inches; the flashing of flat sheet to be counter-flashed, with our fibre and cement. Page 18, Fig. 58.

Fig. 48



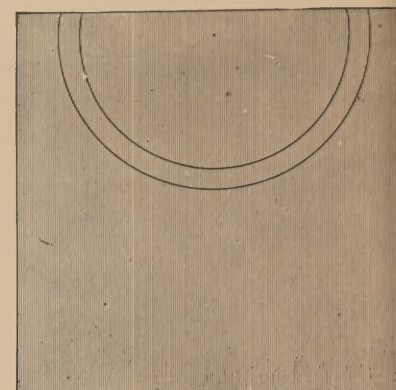
Shows the two plates applied to circular stack. At upper end of flange, next to stack, we recommend the counter-flashing with our fibre and cement, as per directions, Page 18. In applying the plates, one piece runs under the corrugated iron, and the other over, the same as in Fig. 48.

Fig. 49



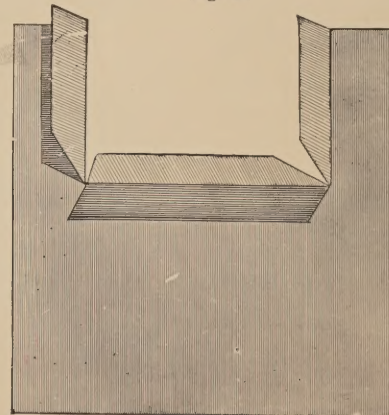
Shows how to prepare flat sheets for fitting around openings. If Corrugated Sheets is used, the flat sheets are fitted to openings and counter-flashed, then corrugated sheets fitted over and under the same.

Fig. 50



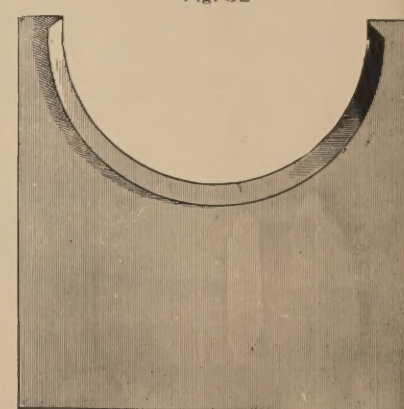
Shows how to prepare plain sheets to fit a round iron stack that is circular in form; and Corrugated Sheets to be used for roofing.

Fig. 51



Shows Sheet cut, trimmed and turned for fitting around square openings.

Fig. 52



Shows one plate finished for circular chimney fitting.

Valley flat Sheets, Painted or Galvanized, we keep in stock. Made in widths of 10 to 30 inches, and shipped in rolls of 50 lineal feet. See price list on Valleys and Combing or Hip Capping

Sheet Steel Eave or Gable Covering, Window or Door Casings, Etc., Painted or Galvanized

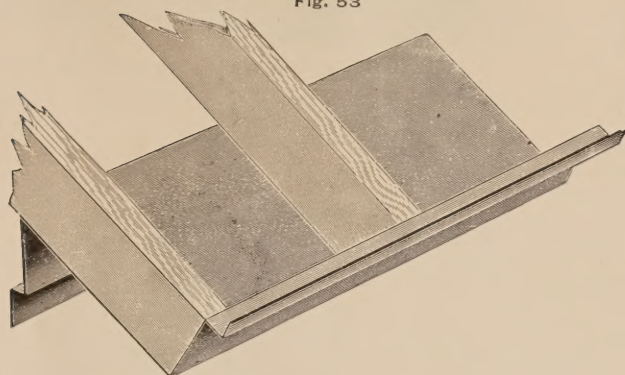


Fig. 53

Shows section of Sheet Steel Cornice, as applied on rafters.

This is used largely on grain elevators, foundries and all kinds of manufacturing buildings. Regular lengths, 120 inches. We can make sizes to suit the distance between rafters, and for any size or design of cornice.

	FOR 28 GAUGE STEEL	Painted.	Galvanized.
24-inch Girth, per lineal foot		22 cents.	30 cents.
26 " " 		24 "	32 "
28 " " 		26 "	34 "
30 " " 		28 "	38 "

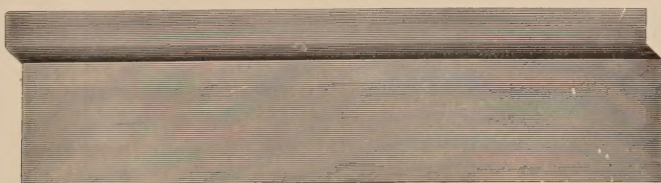
Fig. 54



Shows Sheet Steel Window Casing, for casing Window Frames ; regular length, 120 inches.

		28 GAUGE STEEL	Painted.	Galvanized.
3-inch face, per lineal foot	.	.	10 cents.	12 cents.
4 " "	.	.	11 "	13 "
5 " "	.	.	12 "	14 "

Fig. 55



Shows section of Sheet Steel Base; length, 120 inches.

	28 GAUGE STEEL	Painted.	Galvanized.
9-inch Girth, per lineal foot		8 cents.	12 cents.



Fig. 56

Shows Sheet Steel Door Casing and Jamb, for use in Casing Door Frames; regular length, 120 inches.

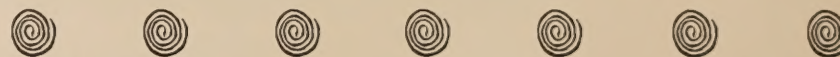
28 GAUGE STEEL				Painted.	Galvanized.
3-inch face, 12-inch Girth, per lineal foot				9 cents.	12 cents.
4	"	13	"	11 "	14 "
5	"	14	"	13 "	16 "

Fig. 57



Shows Sheet Steel Window Sill, for use in covering sills of windows. Made to order in lengths to fit the sills of windows.

28 GAUGE STEEL		
	Painted.	Galvanized.
9-inch Girth, per lineal foot	8 cents.	12 cents.

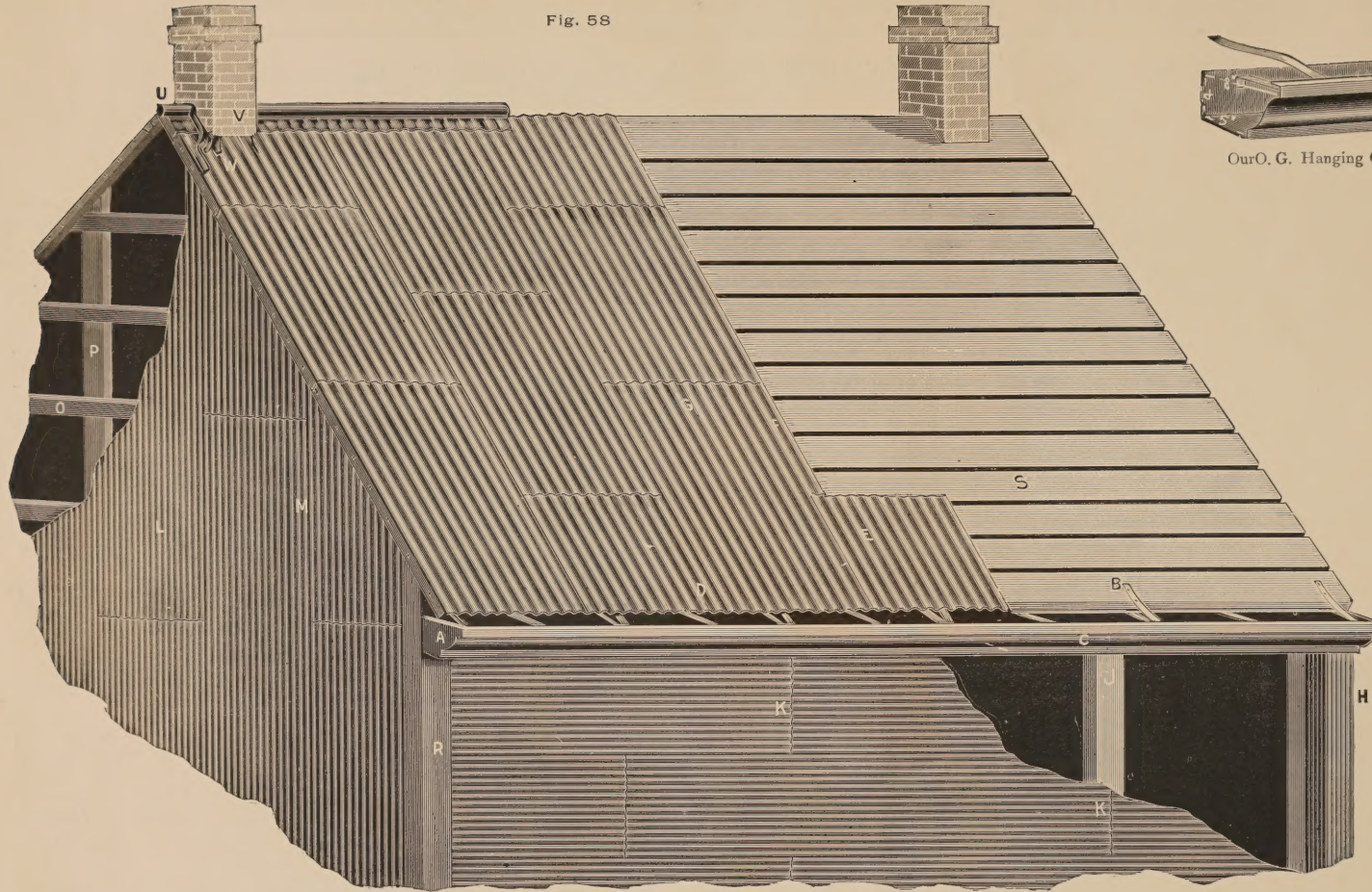


For prices on heavier gauges, add $\frac{1}{2}$ cent per inch per lineal foot for each gauge heavier than 28 gauge. Special length and size of girth made to order from specifications.

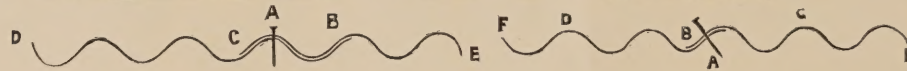


✧ PRESSED CORRUGATED SHEETS ✧

Fig. 58



No. 1

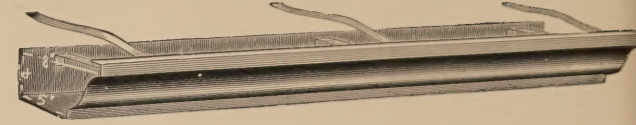


Shows a Building Covered with Corrugated Iron Sides and Roof.

A—O. G. Hanging gutter, No. 3. B—Gutter straps. C—Braces and cornice finish. D—Sheets project at bottom 3 inches over eaves into gutter. E—Corrugated sheet, side lap $1\frac{1}{2}$ corrugations. F—Inside or under corrugations of last sheet laid. G—Cross lap 3 inches and nailed on top of corrugation, using lead washer, Fig. 1. H—Four inch square corrugated downfall, Fig. 206. J—Studding. KK—Where to nail sheets to fasten them to studding; sheets put on horizontal. L and M—Nailing point for siding; sheets put on perpendicular as desired. O—Cross slats, put 2 feet apart. P—Studding, 4 feet apart. R—Steel corner board, Fig. 34. S—Sheathing rough boards. U—Comb cap, Fig. 23. V—Brick chimney, and our fibre flashing finish, page 44.

Sectional view of laps, which are proper in applying Corrugated Iron. No. 1. A—Where to nail for roofing. B and C—Lap of $1\frac{1}{2}$ corrugations. D—Ending of sheet. E—Beginning of sheet. No. 2. A and B—Show half corrugation lap for siding. C and D—Top of corrugations. E and F—Shows a finished sheet and how to begin in applying siding. Always break cross joints if possible, and lap side seam as in No. 1, for roofing, and as in No. 2 for siding; commence at right hand of roof and lay to the left, and from eaves to comb; never across the roof, but as in Fig. 58.

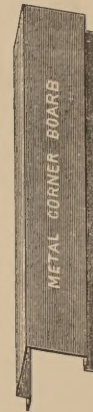
Fig. 186



Our O. G. Hanging Gutter or Eaves Trough, No. 3, as in letter A of Fig. 58.

Fig. 34

Patented May 31, 1887.



Shows manner of finishing the corner of building with Metal, made convex or concave.

These are so formed that they admit of finishing the angles and corners in a neat and fire-proof manner, and are recommended to be used by all architects and builders.

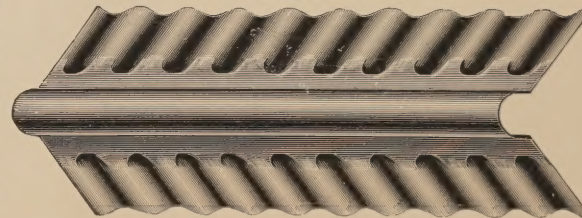
Without them corners are not completely covered, and no good workman can make a perfect finish except by their use.

Fig. 206



Shows 4-inch Corrugated Galvanized Water Conductor.

Fig. 23



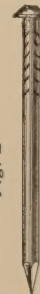
Shows $2\frac{1}{2}$ -inch Corrugated Steel Comb Cap, letter U.

Fig. 1. 35c. per lb., extra



Shows Lead Washer to use under nail head in roofing.

Fig. 2



Shows size of wire nails to be used.

Fig. 38

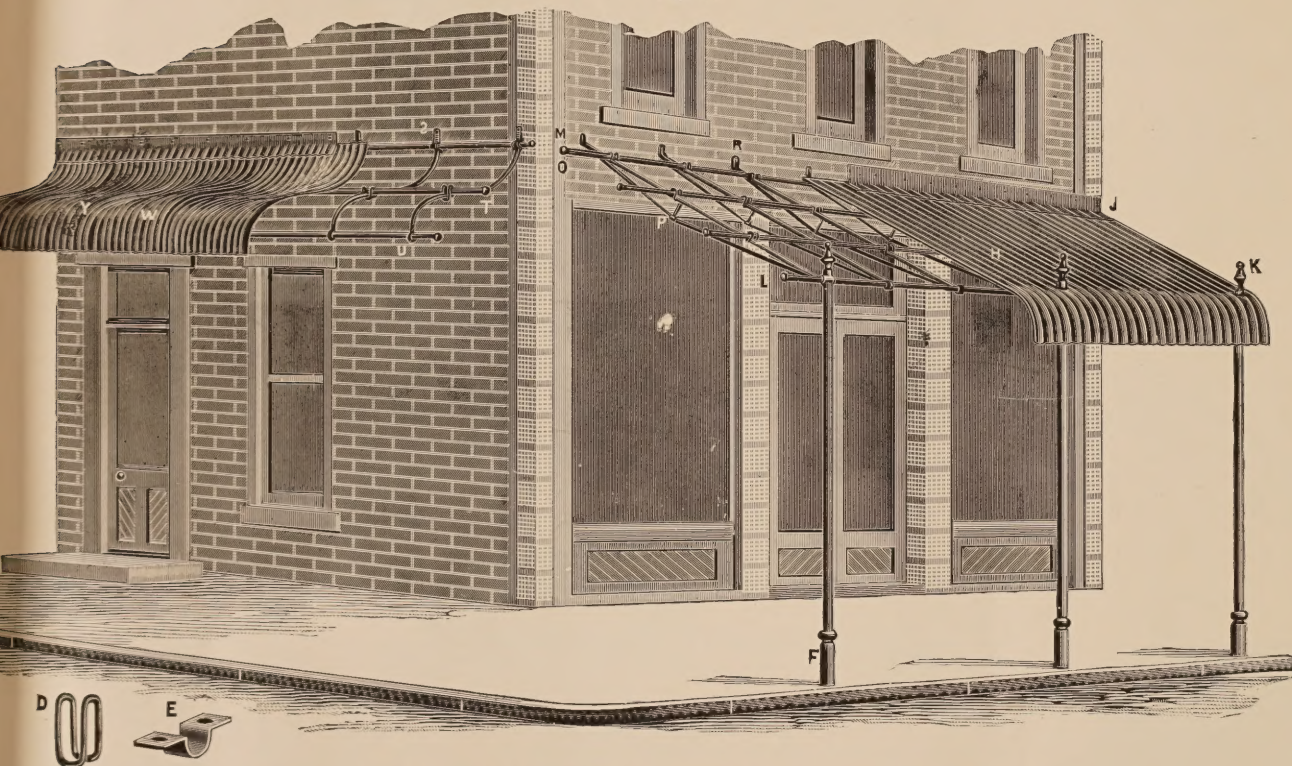


Shows application of corrugated board, used with Corrugated Iron.

ANGLE FORMS OF CORRUGATED SHEETS

Permanent Iron Frame for Awnings and Veranda Covering. Covered with Straight or Curved Sheets, as in Figs. 60 and 63

Fig. 59



Shows a frame structure covered with our Steel Brick and Stone Panel corner finish. Brick covering, see page 38.

P—Iron gas pipe frame truss. O—Purlins. P—Truss rafters. D—Iron loop for binding purlins and rafters. E—Clips for fastening corrugated sheets to purlins. F—Iron post. H—Corrugated sheet curved. J—Corrugated flashing. K—Iron post finial. L—Stone panel (steel) finish. M—Corner finish of stone panel. For prices on corrugated covering, straight or curved, see price list. For iron frames, they vary according to size, per lineal foot, from \$1.75 to \$4.50; depends upon the width and length of the frame. For estimate of cost, send us the height of front of building, the width from edge of building to curb, and length in width it is to cover, and we can give the cost of same all complete, ready to put up. The steel brick covering and stone panel corner boards, see pages 38 and 39. S—Gas pipe bracket frame. U—Lower guard rod. Y—Double curved sheets. W—Side lap. See Fig. 60, double curve for bulk or veranda covering.

Fig. 60



Shows Double Curved Corrugated Iron for Ventilators and Verandas, as in letter W, as in Fig. 59.

Fig. 61



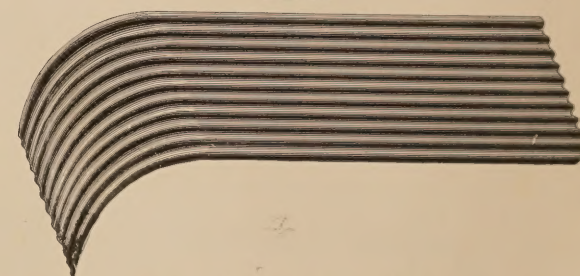
Shows Iron Band for use in fastening Corrugated Sheets to Iron Purlins.

Fig. 62



Shows Iron Stirrup used in fastening Corrugated Sheets on Iron frames. We make them this shape of any desired size.

Fig. 63



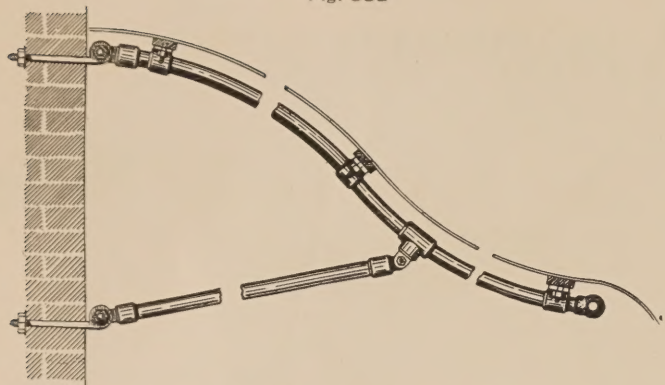
Shows Corrugated Sheets, curved for Permanent Awnings; neat, cheap and durable; as in Fig. 59, letter H.

Fig. 24



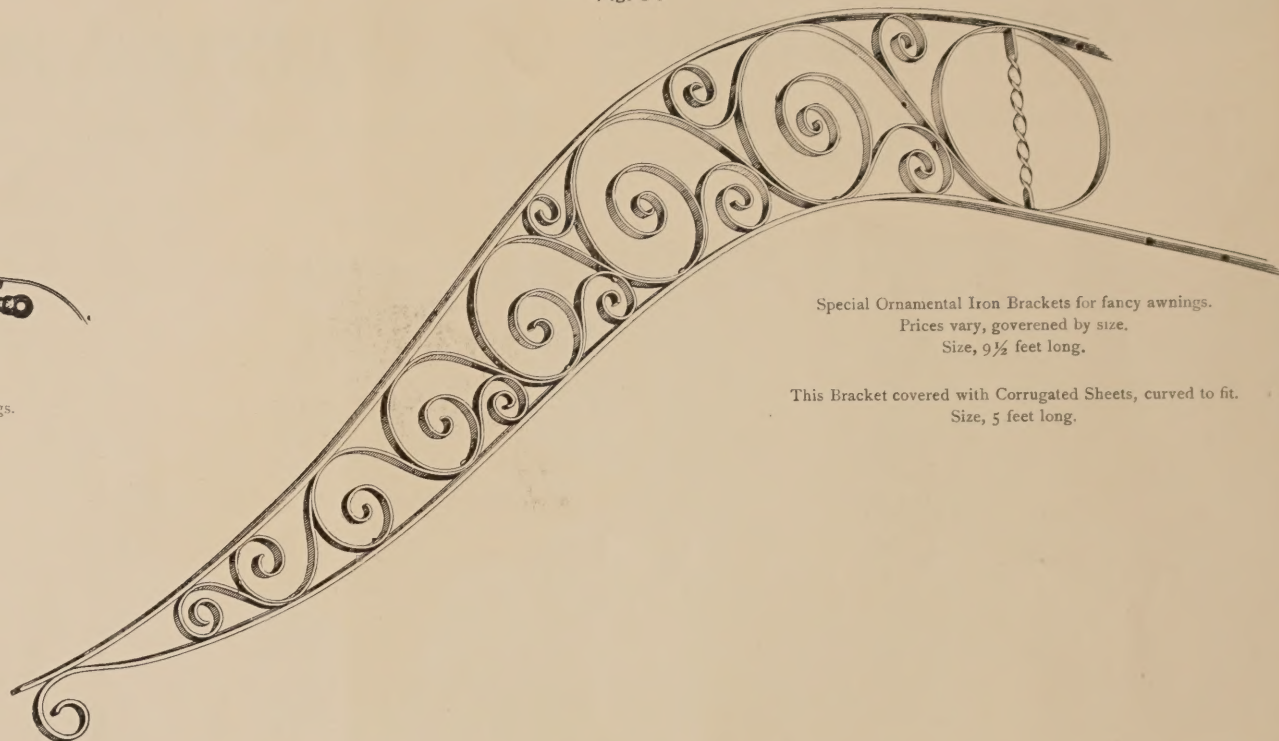
2 1/2-inch Corrugated Steel Crosswise flashing, as in Fig. 59, letter J.

Fig. 332



Section showing Pipe Curved Brackets for Double Curved Awnings.
Fig. 60, Page 19; and Fig 59, Page 19, Letter W.

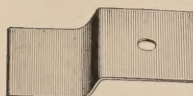
Fig. 64



Special Ornamental Iron Brackets for fancy awnings.
Prices vary, governed by size.
Size, 9½ feet long.

This Bracket covered with Corrugated Sheets, curved to fit.
Size, 5 feet long.

Fig. 333



Clip used in fastening Corrugated
Sheets to Iron Frames.

Fig. 334



Shows Iron Band for use in fastening Corrugated Sheets
to Iron purlins.

Fig. 335



Shows Iron Stirrup used in fastening Corrugated Sheets or Iron
Frames. We make them this shape of any desired size.

Fig. 65

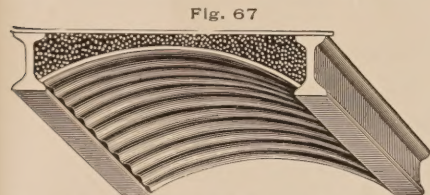


This Bracket covered with Corrugated Sheets, curved to fit. See Fig. 59, page 19, Letter W.
Size, 5 feet long.

ANGLE FORMS OF CORRUGATED SHEETS. CORRUGATED CURVED ARCHES. STRENGTH OF CORRUGATED STEEL ARCHES

These can be curved to any desired radius, within bending capacity of the material. In ordering, refer to letter C, page 23, in sheet of how to order.

We make these to specifications required, of steel or iron, and give especial attention to exactness in this kind of work, having a large patronage from the leading architectural iron works, bridge works, builders, etc. These sheets are in very general use, besides for purposes indicated, as they present a handsomely finished appearance, and often save expense in construction, e. g., for lantern or ventilator roofs, or dormer window caps, etc.



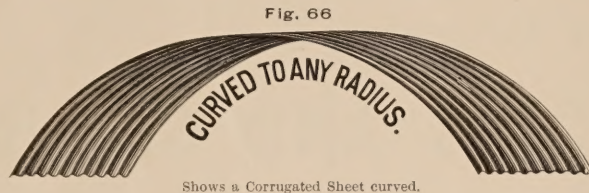
Shows a section of a Corrugated Steel Arch, for fire-proof buildings, etc., in which our Corrugated Curved Sheets are used.

per cent. cheaper than those built of brick arches, or, in fact, any other fire-proof floor. Curved ceilings, when painted suitably, present a very beautiful finish, and for durability, far excel plaster.

The use of curved sheets for roofing, ceiling and other purposes, are infinite, and many will suggest themselves to the reader besides those here named.

First.—A sheet of No. 16 Iron, (about 1-15 inch thick) 27 inches wide, by 4 feet long, with five complete corrugations of 5 inch by 1 inch, was laid on supports 3 feet 9 inches apart. A block of wood 9 inches wide by 7 inches thick, and 30 inches long, was placed across the centre, and gradually loaded with castings weighing 1,600 pounds.

This caused a deflection at the centre of precisely $\frac{1}{2}$ inch. On the removal of the load after an hour, no permanent set was appreciable. The severity of the test was purposely increased by applying the several castings very roughly, jolting the whole as much as possible. The suspended area of the sheet was 8.44 square feet; and since the actual centre load of 1,600 lbs. is equivalent to 3,000 lbs. equally distributed it amounts to $3,000 \div 8.44 = 355$ lbs. per square foot distributed. But 3,000 lbs. distributed would produce a deflection of but about full $\frac{1}{4}$ of an inch. Again: 355 lbs. per square foot is about four times the weight of the greatest crowd that could well congregate upon a floor. Consequently this iron, at 3' 9" span, is safe in practice for an ordinary crowd; moreover, such a crowd would produce a centre of deflection of only the $\frac{1}{4}$ part of $\frac{1}{4}$ of an inch; or 1-16 of an inch; or 1-720 of the clear span, which is but two-thirds of Tredgold's limit of 1-480 of the span. (See Art. 26, of Strength of Materials, p. 196.)



Shows a Corrugated Sheet curved.

These arches, for strength, lightness, durability and fire-proof qualities, cannot be excelled. Corrugated Arches have often been tested (Trautwein), and have never shown any deflection at a pressure of 1,000 pounds per square foot, and little deflection at 2,000 or 3,000 pounds per square foot, of 18 wire gauge.

The weight of the Arches, with concrete filling on top of beam, is but little over half that of a brick arch, and concrete filling same height, thus allowing fewer or lighter beams to be used, and lessening the load on the walls. These floors are from 20 to 35

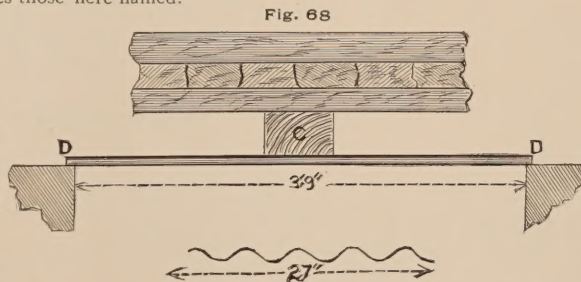


Fig. 68

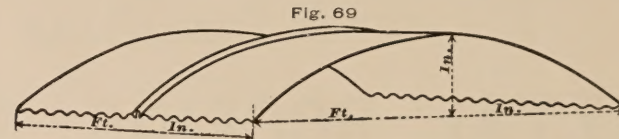


Fig. 69

Allow for projections, if for Roofing. If for Ceilings, make base line from $\frac{1}{4}$ to $\frac{3}{4}$ less that distance between webs of I Beams, etc.; when shoes are used, state thickness of iron used in same, and give sketch of section of shoe, and, if so, width of same.

In one experiment the ends of the sheets rested upon supports dressed so as to present undulations corresponding tolerably closely with the shape of the corrugations; but in the other the supports were flat, and each end of the sheet rested only upon the lower points of the corrugations. No appreciable difference was observed in the results.

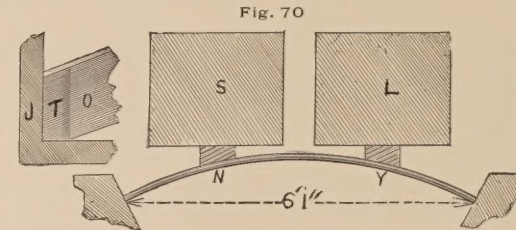


Fig. 70

Second.—An arch of No. 18 (1-20 inch) iron, corrugated like the foregoing, but the depth of corrugation increased to $1\frac{1}{4}$ inches, by the process of arching the sheet; clear span 6 feet 1 inch; rise 10 inches; breadth 27 inches (of

which, however, only 25 inches bore against the abutments).

Each foot of the arch abutted upon a casting, the inner portion of which was undulated on top to correspond with the corrugations of the arch which rested upon it. At *y* (one-fourth of the span) two wooden blocks were placed, occupying a width of 9 inches and extending across the arch; on them was piled a load of castings, to the extent of 4,480 lbs., or two tons. Under this load the arch descended about $\frac{1}{2}$ inch at *y*, becoming flatter along that side, and slightly more curved upward along the unloaded side *n*. Two similar blocks were then placed at *n*, and two tons of load *s* were piled upon them in addition to the two tons at *l*, making a total of 8,960 lbs., or four tons. This brought the arch more nearly back to its original shape, but still slightly straightened at both *n* and *y*, and a little more curved in the centre. The load was then increased to 10,000 lbs., and left standing

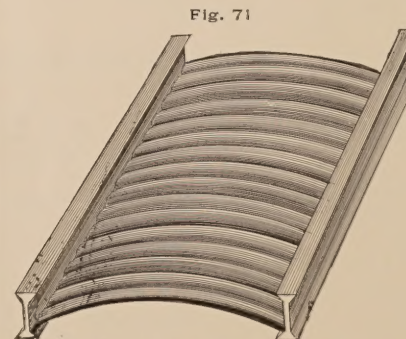


Fig. 71

Shows curved Corrugated Sheet, resting on flanges of I beams—the space above to be filled with concrete if desired, as in Fig. 67.

for several days. Two iron ties, each $\frac{1}{2}$ by $1\frac{3}{4}$, which were used for preventing the abutment casting from spreading, were found to have stretched nearly $\frac{1}{4}$ of an inch; additional ones were inserted, and the load increased to a total of 6 tons, or 13,640 lbs., parts of it on *s* and *l* and part in the shape of long broad bars of iron at the centre of the arch below the loads *s* and *l* and between *n* and *y*. So far as could be judged by the eye, the shape of the arch was almost perfect. The loads *s* and *l* did not touch each other. After standing more than a week, the load was accidentally overturned, crippling the arch. The load was equal to about 1,000 lbs. per square foot of the arch.

Such arches have since come into common use instead of brick for fire-proof floors. Trautwein's Engineers' Pocket Book, page 371, 20th edition.

PAINTED OR GALVANIZED

Directions for Ordering

METAL ROOFING, SIDING AND CEILING

FOR Straight or Plain Ceiling, give exact size. Also say in which direction you wish length of sheets to run. If ceiling plates are to be applied to joists, give distance between centres, and if cornice, moulding strip, rosettes, and centre pieces are wanted. (We advise sheathing or stripping with $\frac{5}{8}$ or $\frac{7}{8}$ -inch rough lumber all ceilings before applying our steel designs.)

When ordering Corrugated or Crimped Capping for Ridge Roof, state if we shall ship ridge roll with wood fillers, or corrugated margin, or V Crimped Flat Margin for Standing Seam Roofing.

When ordering Corrugated, give size of Corrugations, Clapboards, Beaded, or Steel Brick, for siding; state if we shall ship Corner Finish; how many feet of convex and concave.

When ordering Corrugated V Crimped, Standing Seam, or Roll Roofing, say whether the Roofing is to be used on light sheathing strips, sheathed solid, or direct to Rafters; and be careful to state what style of Roofing you want as per figure and page in catalogue; the gauge of metal, painted or galvanized; the size of Corrugation. If Corrugated is ordered for Roofing, follow the same precaution, and no error on our part will occur. A little attention to this may save delays in shipment, and enable us to fill your orders more promptly and correctly.

A practical experience of some twenty-eight years shows us that the proper place to cut metal to fit around openings, etc., is when the same is being applied. We therefore advise using our Improved Cutting Shears and employing a skilled workman, as we feel confident our cutting in the factory from drawings will not give full satisfaction to our customers. But if insisted upon, we will do the fitting at customer's risk and charge for time and waste.

When ordering Roofing, Siding or Ceiling, fill out diagram like the following on page 23, and enclose with order, stating plainly, gauge, style, how finished, and class of material wanted—Page and Fig.



GET THE BEST, NOT THE CHEAPEST

Confine your purchases to such goods as your experience and judgment tell you are of the finest quality. No merchant can build up a profitable business by selling inferior goods. When undesirable goods accumulate, the wheels of business are clogged. Sell the most reliable articles at reasonable prices. Serve your customers with Penn Co.'s Metal Products manufactured under Sagendorph Patents, as they never fail to please. In the sale of two million and one-quarter squares sold in fifteen years, they have given entire satisfaction and proved worthy of patronage.

READ CAREFULLY

In ordering Roll and Cap or Standing Seam Roofing, of any styles we make, say whether you have made allowance for bending down at eaves, side wall, flashing, and meeting at ridge.

When ordering Corrugated, state what kind of roofing or siding you want, the number of gauge, whether painted or galvanized, and which size of corrugation.

Orders for odd lengths in all numbers should be sent ten or fifteen days before wanted; this will save waste in cutting to length wanted, by giving us time to roll it to any length up to 10 feet.

When ordering Roofing or Siding, fill out the diagram sent you and enclose it with your order. If for Roofing only, fill out diagram for roof; for siding, fill out for the sides only; for Roofing and Siding, fill out the entire diagram and make allowance for projections.

Orders for Steel Brick, Clapboards, Escalloped Siding, state if you desire Corner Finish, and of what style and size. Read each described style carefully pertaining to the goods you desire to use. This will assist you in ordering just what you want, and be satisfactory. Our stock in length of sheets are from 1 to 10 feet. In width, 26 to 30 inches in the flat. All sheets ordered in lengths that contain less than 12 inches, we charge for the full foot, except in $2\frac{1}{2}$, $3\frac{1}{2}$, $4\frac{1}{2}$ feet lengths, as these can be cut from uneven feet lengths, such as 5, 7 and 9 feet lengths. If orders are placed with us 15 days before wanted, we can roll to order any odd lengths up to 10 feet, without extra cost, or waste. Bear in mind that we try to explain clearly all our products, their values and uses. So read these pages carefully, if you are about to purchase.

THE PENN METAL CEILING AND ROOFING CO., LIMITED, PHILADELPHIA, PA.

ORDER SHEET TO BE FILLED OUT AND SENT WITH ORDER

The following Instructions are Important, or they would not be given. Use them to avoid Mistakes

Be careful to state just what you want.

Fill out the proper diagram with accurate dimensions. Accuracy is of the greatest importance.

The customer must be responsible for the correctness of his figures and drawings.

If you want us to cut siding to fit, provide drawings showing the distances from corners to openings, between openings, below and above openings, and the sizes of openings.

Unavoidable waste in cutting material to dimensions is invariably charged at full price, and labor added.

In ordering ceiling, give size of the room, the space from centre to centre of joists, if possible, and also the way they run across the room.

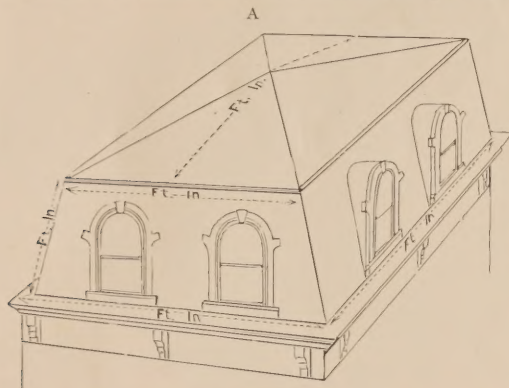
For roofing state whether or not you have made the necessary allowances for turn down or projection (as the case may be) at eaves, and for side laps on sheets, or if you wish us to add them to your figures.

For A RIDGE ROOF AND SIDING for such buildings, fill out as indicated.

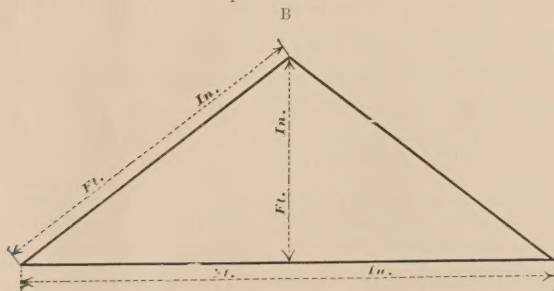
HOW TO ORDER ROOFING AND SIDING

For Mansard Roof, furnish us the dimensions as indicated per Letter A.

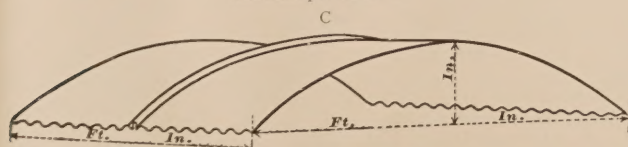
For Hip Roof Building and Siding, furnish us the dimensions as indicated per Letter D.



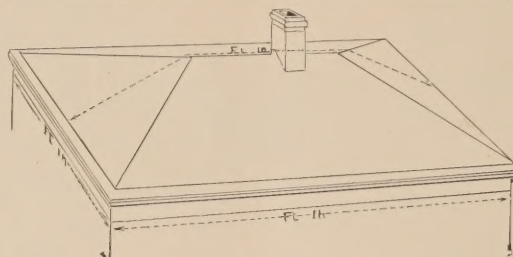
For Gable Roof Building and Siding, furnish us dimensions as indicated per Letter B.



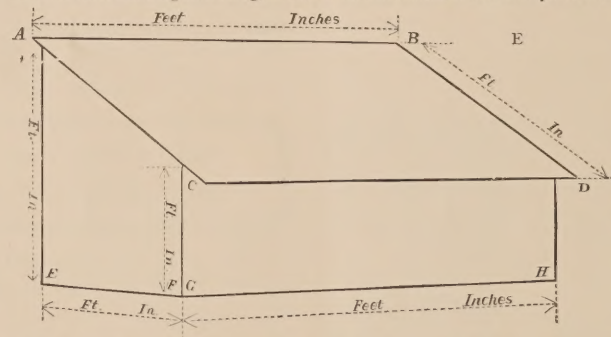
For Curved Sheets, always state whether for Roofing or Ceiling, and furnish as indicated per Letter C.



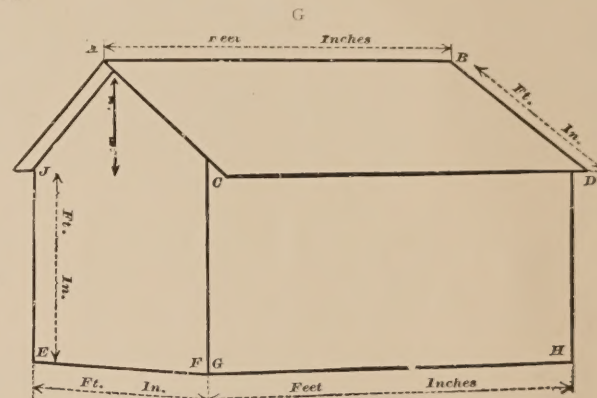
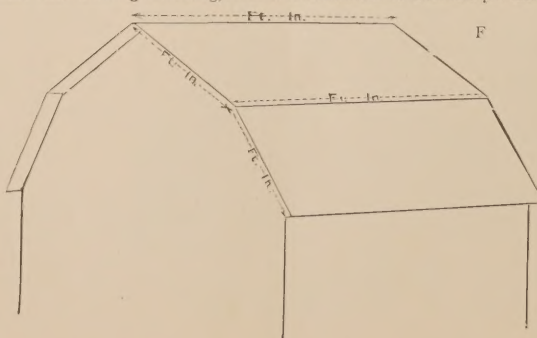
Allow for projections, if for Roofing. If for ceilings, make base line from $\frac{1}{4}$ to $\frac{3}{4}$ less than distance between webs of I Beams, etc., when shoes are used, state thickness of Iron used in same, and give sketch of section of shoe, and, if so, width of same.



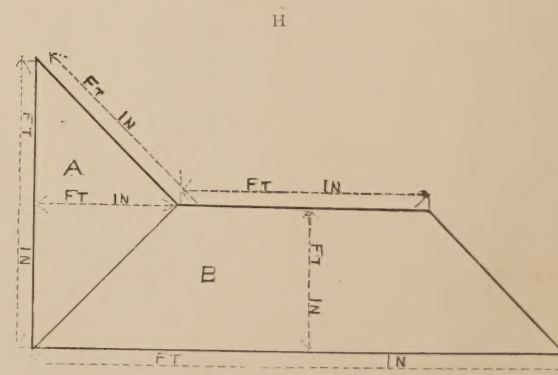
For Shed Roof Building and Siding, furnish us the dimensions as indicated per Letter E



For Curb Roof Building and siding, furnish us dimensions as indicated per Letter F.



For Gables, furnish us the dimensions as indicated per Letter G.



For Hips and Valley Roof with Ridge. Letter H.

These rules must be followed, and no trouble will arise from short shipments or miscalculations. It takes so much Roofing material to cover a certain space, and parties only deceive themselves by not allowing enough to complete the work.

After making measurement from out to out, either for Roofing, Siding or Ceiling, add 10 per cent. for corners, laps, turning over and side and end fastenings over barge boards, or up against parapet walls, ridge combs, etc. This will always insure enough material to cover space mentioned.

It is an ART to take a correct Measure, and another to EXECUTE the same ACCURATELY

DIRECTIONS FOR LAYING OUR STANDING SEAM ROOFINGS

APPLIES TO ALL STYLES OF CLEATS USED ON PRESSED STANDING SEAMS

Describing Figures 76, 77, 78, 80 and 81

Commence at the left hand of the roof if possible, at the bottom; take the sheet and straighten out the double standing seam or flange, and turn it over to the barge-board or up against the parapet wall (whichever the case may be), and make joint on upper end of sheet "F" (Fig. 78); then place the cleats along the single standing seam, 14 inches apart, closing this seam with tongs before placing on the cleat, keeping the tongue of cleat "D" in an upright position; then place end cleat as in Fig. 78, letter "H"; join on another sheet the same way, closing end joint with mallet, until the comb or ridge-pole is reached; allow one inch to turn up at the top, which is done by using the Jointer; snip the flange one inch, then turn it up and put cleats about one foot apart. This will finish the first course; also put two cleats at each end joint of sheets as in Fig. 78, letter "H."

Commencing second course, lay the next sheet with double flange or seam over the single flange, press it down and turn the tongue of the cleat over, so as to hold it in place, then take the Tongs and press Standing Seam together. This finishes the standing seam; and so on until this side of the roof is completed.

The other side is laid in the same way, and at the top, where the sheet is to be cut (or if not quite enough, add a piece), leave one inch to turn up to form a flange to meet the other side. After this side is all laid, draw the two flanges together with the Tongs, then take the scrap pieces left and cut strips 2 inches wide (or we will furnish them if desired 8 feet long), put these in the Jointer, and make it a U shape; then fit it over the two flanges on the comb, and bend the tongue of the cleat over to hold it, then press it together using the Tongs. Fig 81, page 26.

A Hip is made the same way, and valleys are formed by hammering over the double flange and bending it over like U with the Jointer, then throw the single flange over the same way, and lay this sheet in the valley, cleating it each side; and hook the roofing sheet into it and pound it down to close both sheets, making it water-tight. See Fig. 16, page 19, and Fig. 82, page 27.

FIG. 78, PAGE 26.

Explains the method of laying Pressed Standing Seam Roofing on a pitch roof, and the manner of forming the comb without the use of any extra pieces. It also shows the method of securing the edges at sides of roof. A—Side of roof completed. B—Ridge or comb as it appears when completed. C—Standing Seam hammered down and formed into comb. D—Extreme end of sheet, having two inch margin turned up to form comb. E—Opposite side of upper end of sheet turned up one inch, over this is folded one inch of the sheet on the opposite side of roof as in D. This folding of the end of sheet over the opposite one forms a solid ridge cap all from the sheets proper, and only requires a little careful and patient work to accomplish it. F—Sheet formed ready to place in position on roof. G—Two-inch seam turned for comb. H—End cleats in position at upper end joint of lower sheet. I—End joint formed on lower end of sheet ready to hook into upper joint of sheet H. This finishes the laying, and when done with care, makes one of the most perfect and desirable roofs ever laid.

Description of Figure 76, Page 26

The Cleat "E" is taken and fitted over the standing seam "A" by placing the turned end of cleat down, in an upright position on the inside of seam "H," then bend the upper part over the seam, fitting it around the curve of seam "H" and the double shoulder bends, and plane "B" extends out and down upon the rafters or sheathing, leaving the tongue "D" in an upright position (as shown in

cut "D"), then fasten the cleat to sheathing by driving two wire nails through the plane "B"; this will hold the cleat and first edge of sheet firmly to the sheathing. Continue this with the sheet until the course is finished; then the next sheet for second course is fitted over the bent portion of cleat "B" between the tongue "D." Press this sheet firmly down, and bend the end of tongue cleat "D" over the double seam, and press them tightly together by using the tongs. This will finish the standing seam, fastening both sheets to the sheathing and thoroughly closing the joints against leakage. Always close the double seam with tongs before cleating opposite side of sheet.

It will be observed that the crimp of "C" thus forms a metal cap covering the standing seam "A," and that the sheets are held to the sheathing without being punctured with nails, the whole being held to the sheathing by cleat "E," which may be placed as frequently along the joint as may be required. It will also be observed that the sheets require no binding or forming except at the ends, which are seamed in the usual way. Before applying the cleat to standing seam "A," close it with tongs as shown in cut of sheets "C" and "H," Fig. 9. Sheet "A" shows seam as shipped, and sheet "C" after it had been closed; this will allow placing of cleat in position which will secure its binding around the standing seam, and the drawing of double seam while closing it with tongs. Sheet "C" and letter "G" shows end joint; and sheet "C" letter "F" shows end joint turned upward, allowing the two sheets to be locked together, and closed with a mallet.

 Always close Seam H, as in Fig. 76, before placing on Cleat.

 Always put on End Cleats, as in Fig. 78, Letter H.

We furnish Tools for laying the Roof, and charge actual net cost for the same, as follows:

Squeezing Tongs, per pair . . .	\$2.50	Snips	\$1.75
Edging Tongs	2.50	Mallet	.25
Jointer	.75	Total	\$7.75

We send full set, or any of the above at prices named; but many of our customers only need the squeezing Tongs and Jointer. We will allow the same as charged for them if returned in good condition, free of expense to us.

After the roof is all laid, mix the dry paint (ten pounds) with boiled linseed oil, one pint Japan drier to the gallon, and apply with a flat brush. If any holes are in the roof—caused by laying or miscuts, or flashing corners—paint the broken places, and then finish as per Paint and Cement directions. This will harden, and effectually stop all leaks. We advise using our Cement and fibre patches for flashing.

Note

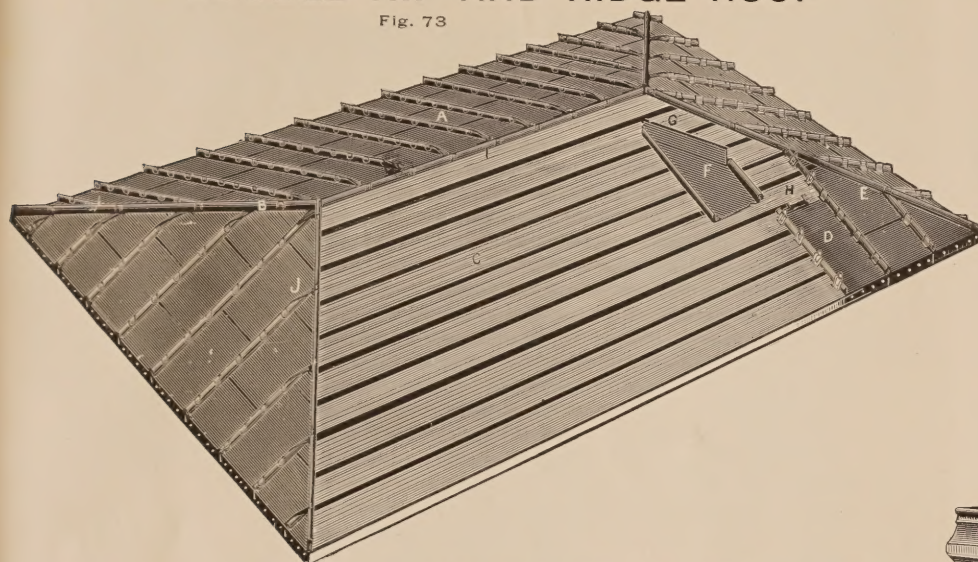
To line a box gutter see Fig 83, Page 27. Also mode or finishing Parapet wall, flashing, etc. For proper application of Metal Cleats see Page 21, which illustrates all the different styles we make, and their proper placement on the standing seams; flashing around chimneys, skylight, or any opening see Page 25, Figs. 74 and 75. Also cement and coating directions. Our process of finishing steel or iron roofs with Obelisk Cement and Coating is far superior to lead solder and acids. Our work with cement and coating never deteriorates by action of the elements. For covering Yankee Gutter, see Fig. 85, Page 28.

SUCCESS IN LAYING OUR ROOFING DEVICES DEPENDS UPON THE MECHANIC AND THE USE OF OUR CEMENT AND COATING

HOW TO PREPARE ROOFING FOR LAYING AND FLASHING

DOUBLE HIP AND RIDGE ROOF

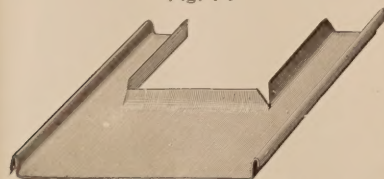
Fig. 73



Shows manner of laying our Pressed Standing Seam or Roll and Cap Steel Roofing, on a roof having $\frac{1}{4}$ hips and a ridge.

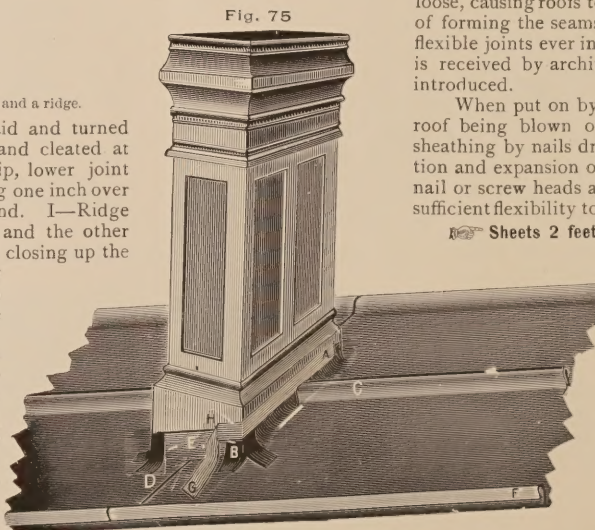
A—One side laid complete. B—One hip formed and finished. C—Hip half laid and turned one inch. D—Sheet laid and cleated at side and upper end. E—Sheet fitted at hip and cleated at side and turned over at hip and finished. F—Sheet all prepared with mitre for hip, lower joint turned to hook into sheet D. G—Upper end turned 2 inches, to form hip finish, turning one inch over the adjoining inch turned on opposite side half finished. H—Sheet cleated to upper end. I—Ridge comb finished one-half. J—One side of roof complete with hip finished on one side, and the other side ready for adjoining sheets, as the remaining side unroofed is being covered and closing up the work, all mitred pieces cut from sheets at one side can be used without loss by applying them on the opposite side. A good workman will watch this part, and if careful, can lay a roof of this kind without any loss, while a careless and ignorant one would waste 25 per cent.

Fig. 74



Shows sheet prepared to fit around chimney, scuttle, or skylight frames.

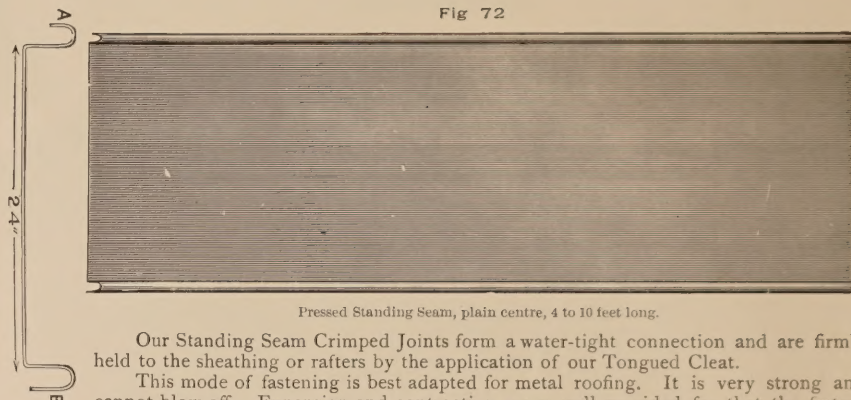
In preparing the steel sheet to fit openings, it is necessary to provide for a 3 or 4 inch turn-up flashing, so in marking the sheet where to cut, always allow for the 3 inch part to be turned up, and cut out the angle or square piece first, then cut corners in 3 inches at triangle points, then turn up the amount provided for at right angles. This will allow the opening in sheet (see Fig. 74) just the right size to get around whatever you have fitted it for, then counter-flash as in Fig. 75.



Shows mode of flashings around chimneys, skylights, frames, etc.

E—Flashing turned from main sheet. D—Cross Joint. C—Standing Seam closed. B—Fibre patch to cover opening at cut corners. F—Standing seam. G—Fibre flashing. A—Fibre counter-flashing finished.

Fig. 72



Pressed Standing Seam, plain centre, 4 to 10 feet long.

Our Standing Seam Crimped Joints form a water-tight connection and are firmly held to the sheathing or rafters by the application of our Tongued Cleat.

This mode of fastening is best adapted for metal roofing. It is very strong and cannot blow off. Expansion and contraction are so well provided for that the fastenings never come loose from the effects of heat and cold. It is also very simple—any one can put it on. No tools are required, but a pair of tongs, hand-snips to cut the iron, and a jointer to make end joints. We make no holes in the sheet, such as are made in laying so-called “cap” and V Crimped Roofing, using wooden strips, which give trouble in putting on, and soon become loose, causing roofs to leak and making them liable to blow off. Our method of forming the seams is acknowledged by all to be the simplest and most flexible joints ever invented. This is evidenced by the favor with which it is received by architects, builders and mechanics wherever it has been introduced.

When put on by our method there is no such thing as a leaky roof, or a roof being blown off. By the old manner of fastening the iron to the sheathing by nails driven through the sheets, it was found that the contraction and expansion of the metal would soon tear the sheets loose from the nail or screw heads at the seam or joints. By our method our seams have sufficient flexibility to compensate for expansion and contraction in the metal.

Sheets 2 feet wide by 4, 5, 6, 7, 8, 9 and 10 feet long.

Figs. 74 and 75 show how flashings around chimneys and frames are made. A—Metal flashing turned against the brick chimney. B—Manner of cementing cut corner. This is done by using our fibre patches and Iron Paste Cement (superior to lead solder), after the corners are treated; then take a strip of fibre, spread it with the paste, and divide it between the upper edge of iron flashing and brick work, pat it smooth and work the edges of fibre out well into the cement, both on to the iron and brick surfaces; then paint over the fibre lightly, so that the flashing is well filled with paint, and after the roofing is all laid, flashing completed, proceed to paint the entire roofing, and give all patching and flashing a second coat. This flashing will outlast any lead solder, and make perfect contact of the metal to either stone, brick or wood. Always put the corner pieces on first, well covered with cement, and patted out smooth as in letter B. Then counter-flash all around, as above given. More leaks occur around parapet walls, chimneys and frames than any other part of the roof, from all kinds of roofing, be it tin, iron, slate, or shingles, and our mode of flashing and patching is the most effectual ever tried. It has stood the test for over 20 years.

Study our Paint and Cement directions carefully to do good work in applying our metal roofs under our process; this is of great importance

DESCRIPTION OF FIGURES 76, 77, 78 AND 81—HOW TO APPLY

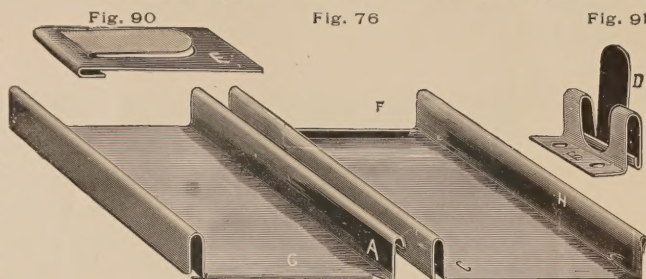
The Cleat "E" is taken and fitted over the standing seam "H" by placing the curved end of Cleat down in an upright position on the inside of seam "H"; then bend the upper part over the seam, fitting it around the curve of seam "H" and the end oval opening, and plane "B" extends out and down upon the rafters or sheathing, leaving the tongue "D" in an upright position (as shown in cut "D"), then fasten the Cleat to sheathing by driving two wire nails through the plane "B"; this will hold the Cleat and sheet firmly to the sheathing. Continue this with sheets until the course is finished. The next sheet for second course is fitted over the bent portion of Cleat "B" between the tongue "D." Press this sheet firmly down, and bend the end of tongue Cleat "D" over the double seam, and press them tightly together by using the tongs. This will finish the standing seam, fastening both sheets to the sheathing and thoroughly closing the joint against leakage. Always close the double seam with tongs before cleating opposite side of sheet.

It will be observed that the seam "C" thus forms an iron cap, covering the seam "A," and that the sheets are held to the sheathing without being punctured with nails, the whole being held to the sheathing by the cleat "E," which may be placed as frequently along the Standing Seam as may be required. It will also be observed that the sheets require no binding or forming except at the ends, which are seamed in the usual way. Before applying the Cleat to Standing Seam "A," close it with tongs, as shown in cut of sheet "C," letter "H." Sheet "A" shows seam as shipped, and sheet "C" after it has been closed; this will allow placing of Cleat in position, which will secure its binding around the Standing Seam and prevent the drawing of double seam when closing it with tongs. Sheet "A" letter "G" shows end joint at bottom of sheet; and sheet "C," letter "F," shows end joint turned

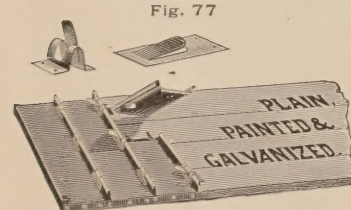
Shows roofing sheets in course of laying on close sheathing, manner of forming end joints, placing of Cleats, and finished standing seam.

upward on upper end of sheet, allowing the two sheets to be locked together, and closed with a mallet. Lay roofing from bottom to top; not across the building

A—Ridge finished. B—One side of roof laid complete, with tongue cleat in position. C—Manner of cleating end joint. D—Full sheet prepared to finish ridge. E—Cap made from a narrow piece of iron, 2 inches wide, bent in a jointer to form a U; this is to be fitted over the two flanges at top of ridge, bending tongue of cleat over, then squeezed together with tongs; this finishes the roof and ridge in a very simple manner, and requires little extra labor or care to do it properly. For two other methods of finishing the comb see Figs. 78 and 82.



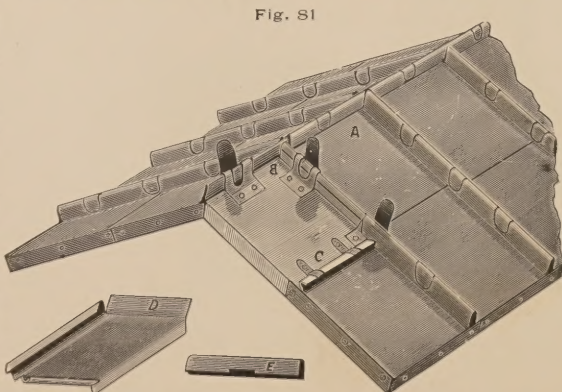
Shows the application of Tongued Cleats and the forming of the End Joint, closing inside Standing Seam before placing Tongue Cleat.



Shows roofing sheets in course of laying on close sheathing, manner of forming end joints, placing of Cleats, and finished standing seam.

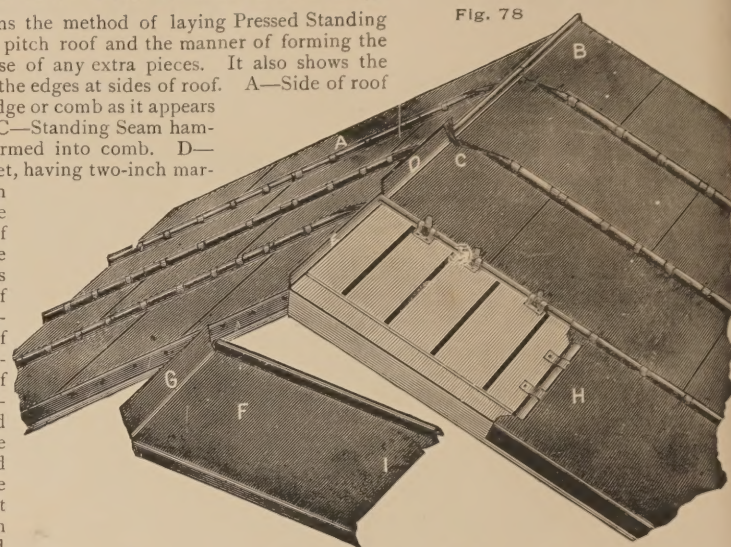
upward on upper end of sheet, allowing the two sheets to be locked together, and closed with a mallet. Lay roofing from bottom to top; not across the building

A—Ridge finished. B—One side of roof laid complete, with tongue cleat in position. C—Manner of cleating end joint. D—Full sheet prepared to finish ridge. E—Cap made from a narrow piece of iron, 2 inches wide, bent in a jointer to form a U; this is to be fitted over the two flanges at top of ridge, bending tongue of cleat over, then squeezed together with tongs; this finishes the roof and ridge in a very simple manner, and requires little extra labor or care to do it properly. For two other methods of finishing the comb see Figs. 78 and 82.

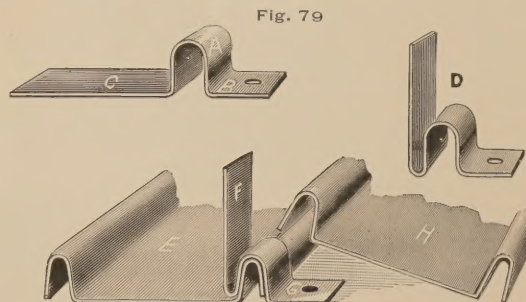


Shows the manner in which the Comb or ridge is finished, also mode of laying roof proper.

Fig. 78 explains the method of laying Pressed Standing Seam Roofing on a pitch roof and the manner of forming the comb without the use of any extra pieces. It also shows the method of securing the edges at sides of roof. A—Side of roof completed. B—Ridge or comb as it appears when completed. C—Standing Seam hammered down and formed into comb. D—Extreme end of sheet, having two-inch margin turned up to form comb. E—Opposite side of upper end of sheet turned up one inch—over this is folded one inch of the sheet on the opposite side of roof as in D. This folding of the end of sheet over the opposite one forms a solid ridge cap all from the sheets proper, and only requires a little careful and patient work to accomplish it. F—Sheet formed ready to place in position on roof. G—Two-inch seam turned for comb. H—End cleats in position at upper end joint of lower sheet. I—End joint formed on lower end of sheet ready to hook into upper joint of sheet H. This finishes the laying, and, when done with care, makes one of the most perfect and desirable roofs ever laid.



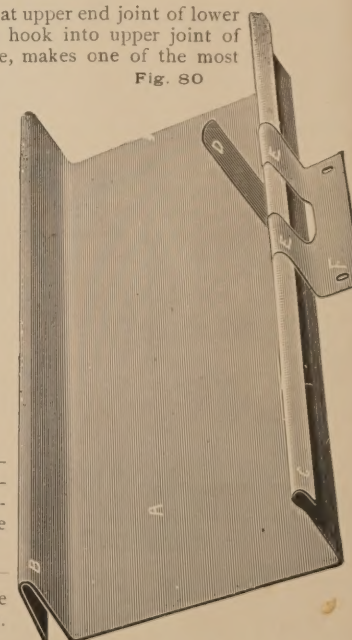
Shows how to lay Pressed Standing Seam Roofing on a pitch roof.



Shows mode of using double fold cleat to any of our Pressed Standing Seam roofing plates.

A—Collar of Cleat for inside seam. B—Nailing foot. C—Inside folding arm. D—Arm in perpendicular position. F—Applied to inside standing seam. G—Nailing foot. E—Inside sheet. H—Outside sheet. When all are in place, the seam to be squeezed together.

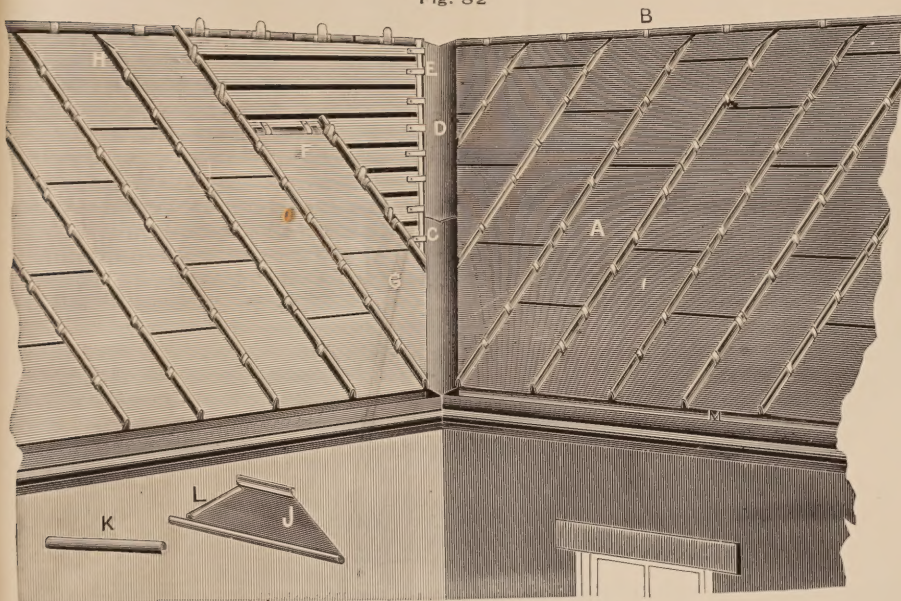
A—Sheet proper. B—Inside double seam. C—Inside 1/2 double seam closed with tongs. D—Tongue of cleat. E—Shoulder of cleat. F—Nailing front of cleat.



Shows proper way of applying Tongue cleat.

ROOF WITH VALLEY AND BOX GUTTER AND PARAPET WALL AND PITCH ONE WAY

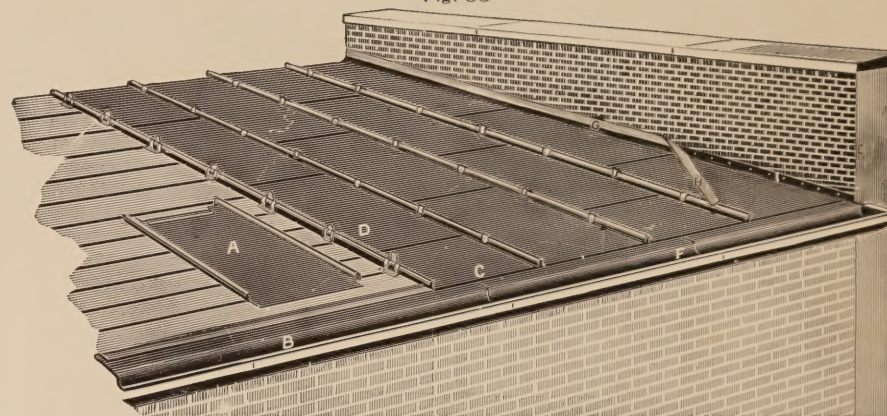
Fig. 82



Shows the manner of laying Pressed Seam Roofing on Buildings having a valley.

A—One side finished. B—Comb finished. This is formed from the sheet and fastened with our tongued cleats, with the exception of the cap which is made from a scrap of iron 2 inches wide, as in K, bent in a V shape, (or we can send these caps in 8-foot lengths already formed when given the length of comb or ridge). This cap is placed over Standing Seam at ridge after the roofing is laid. Bend the tongue of cleat over cap and squeeze together with tongs same as when closing side seams. The Standing Seam is hammered over, commencing about 6 inches down from end of sheets as in H, same as if forming a ridge finish. C—Shows cross joint in valley. D—Valley laid complete. E—Side of valley cleated to sheeting and leaving edge turned ready to receive roofing sheets. F—Roofing sheets turned at end and cleated. G—Sheet hooked into valley, locked and hammered down. H—Standing Seam hammered down to allow of turning up one inch to form Standing Seam for ridge cap. J—Sheet all formed to fit in valley showing how mitre is cut. L—End joint formed on upper end of sheet. K—Ridge cap. By following the plan of laying as explained above you will secure a roof that is perfect.

Fig. 83



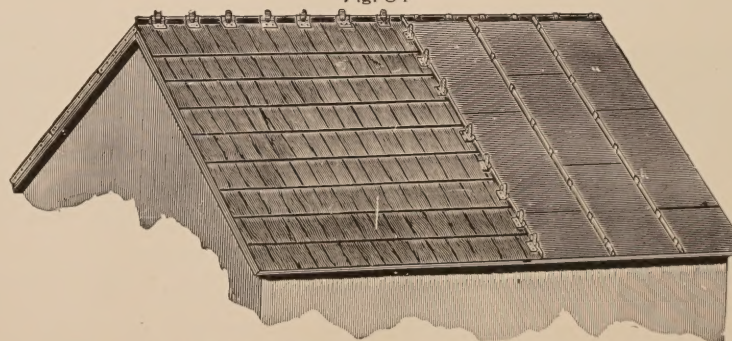
This cut represents the method of laying roof on a building having a pitch in one direction only.

A—Shows roofing formed already to turn hook on lower end preparatory to hooking into upper edge of iron lining of Box gutter. A—Shows end joint turned on upper end of sheet ready to hook into the next sheet. B—Shows Box gutter lined with sheet iron on the upper edge of which can be seen the hook turned to receive the sheet A. C—Shows roofing sheet hooked into lining of box gutter, and the joint closed and completed by hammering down (with a wooden mallet). D—Shows roofing sheets all laid and standing seam finished and cleats on outer edge placed into position and nailed ready for next course. E—Shows parapet wall and method of flashing, and counter-flashing; we also finish this portion of the work by flashing with fibre patch and iron cement. F—Shows joint in the lining of the box gutter, and mode of joining two or more sheets to make a perfectly water-tight gutter-joint.

The method of flashing against parapet walls also applies to skylight, chimneys, fire walls and elevator towers, as in Figs. 74 and 75, page 25.

IRON AND STEEL LAID OVER SHINGLES

Fig. 84



Shows a Shingle Roof being covered with our Standing Seam Iron Roofing.

IRON COVERING FOR BARN

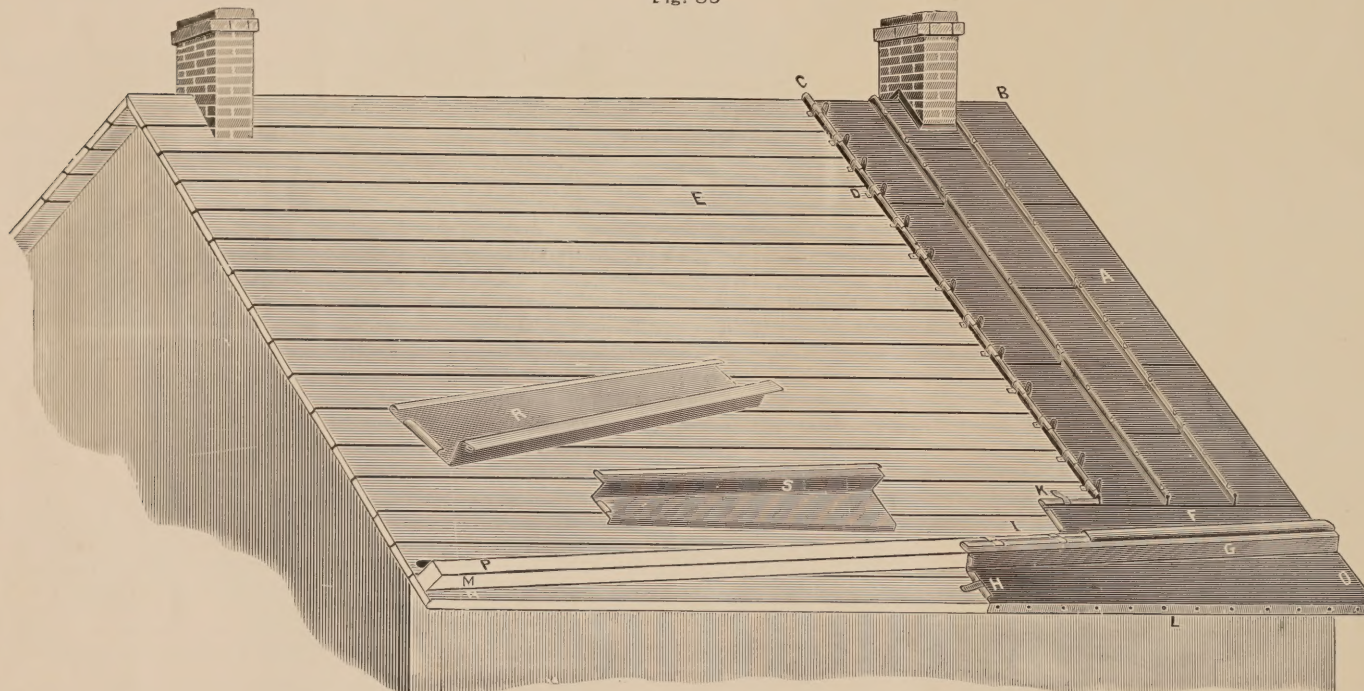
Tobacco cured in Steel-covered Buildings increases in value from 15 to 20 per cent. In other words the difference in the price of tobacco cured in a Steel-covered Building will pay for the metal in from five to seven years.

At the low prices which have been prevailing during the past two years for leaf tobacco, it behooves farmers and redriers of tobacco to put their goods in such shape that they will command the highest prices to insure a profit. This end can only be secured by building warehouses in the manner shown. The burning of tobacco barns is a common occurrence, causing the rate of insurance to be placed high. The insurance can be reduced fully one-half by using metal, as the buildings so constructed are fire proof, and cannot be destroyed by either lightning, spontaneous combustion or incendiarism.

THE PENN METAL CEILING AND ROOFING CO., LIMITED, PHILADELPHIA, PA.

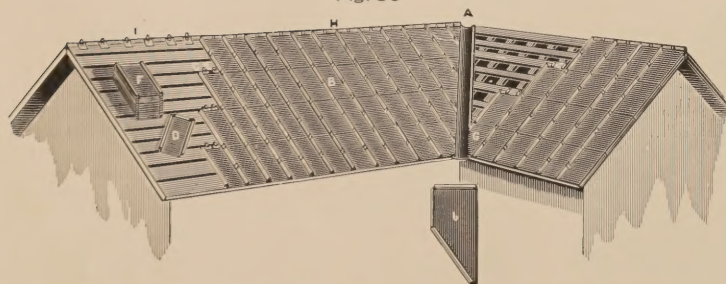
How to Cover a Yankee Gutter and Put in Valley with our Roll Steel Sheets, and Connect any of our Different Styles of Standing Seam Roofing to same, with the utmost safety

Fig. 85



Shows the mode of applying our Pressed Standing Seam, Two-in-hand Cleat, and Explanation covering a Yankee Gutter.

Fig. 86



Shows the manner of laying Standing Seam Roofing over sheathing and slats on roof having valleys.

Explanation of Fig. 85

A—Roofing finished. B—Comb finished. C—Inside Standing Seam squeezed and cleated. N—Outside steel sheets applied below Yankee Gutter board. O—Sheathing below Yankee Gutter board. D—Two-in-hand cleat. E—Sheathing boards. F—Inside lining of Yankee Gutter run up 12 inches. G—Yankee Gutter board covered. H—Joint on end of sheet. I—Hook flange turned on sheet for gutter sheet E. K—Cleat for gutter sheet, lock cross seam turned. L—Flange turned and nailed. M—Yankee Gutter board, 4 inches high. P—Yankee Gutter, top face 2 inches wide. R—Sheet prepared to lay in upper side of gutter. S—Lower sheet prepared to join letter H. With careful work, an excellent job can be done, and a gutter made that will never give trouble. This cut illustrates commencing covering the Yankee Gutter. When doing the work, always commence at lower end to cover, and work to highest point; then the hooked joint will not leak.

Eg—To make foundation for Yankee Gutter, take scantling 2x3 or 4 and fasten it to bottom of roofing boards, viz.: At one end commence about 14 inches from eaves, and to finish taper down to 2 inches at eave; this will give 12 inches fall for the water run in the length of building.

Explanation of Fig. 86

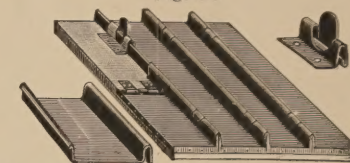
B—Partly finished side. H—Finished ridge. I—Partly finished ridge. C—Sheet mitred and hooked in valley. A—Valley laid of sheets prepared for valley in roof. D—Sheet with end joint made. G—End cleats. F—Sheets as shipped. J—Mitred sheet prepared to fit in valley, lower cross joint turned.

Fig. 87



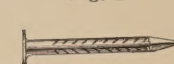
Shows manner in which two or more sheets are joined together at end of sheets, and opposite ends with joint made ready to place in position. This operation is performed by the use of Jointer, which is sent with tools if ordered.

Fig. 88



Shows roofing sheets applied to close board sheathing, finish at ends, and mode of forming end joints; placing of tongued cleats; finish of standing seam. In laying standing seam roofing, always hook ends of sheets together as in Fig. 87; close this seam with wooden mallet, and never use a hammer, as it bruises and cuts the metal.

Fig. 2



Shows Barbed Wire Nail, shipped with roofing.

Fig 91



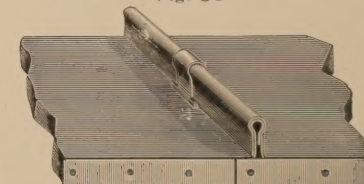
Shows tongue cleat bent ready to place over standing seam. The perforated end of cleat goes on sheathing.

Fig. 90



Shows Tongue Metal Cleat as shipped.

Fig. 89



Shows Standing Seam finished. Also method of turning down and nailing edge along the eaves when the building is not provided with a cornice or box gutter.

Our Sheet Metal Materials in the hands of an experienced mechanic produce more satisfactory results than all other substitutes

Pressed Standing Seam Extension Cleat Steel Roofing

Pat. Jan. 11, 1887; March 8, 1887; Jan. 14, 1888. Machine patented June 28, 1887. Jan. 5, 1890, granted.

ITS MECHANICAL CONSTRUCTION EXCELS THAT OF ALL COMPETITORS

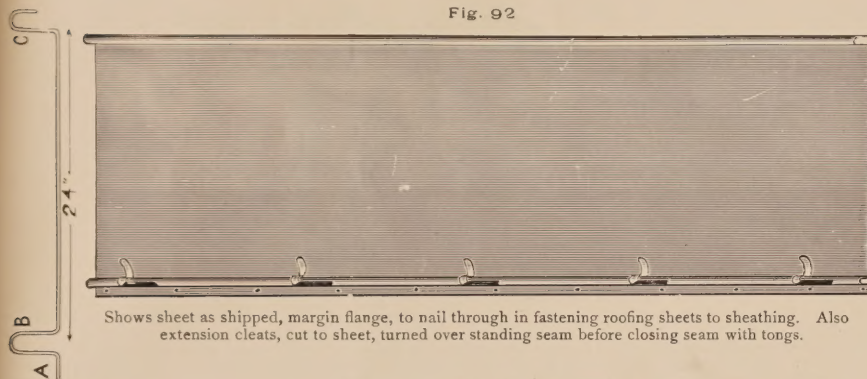
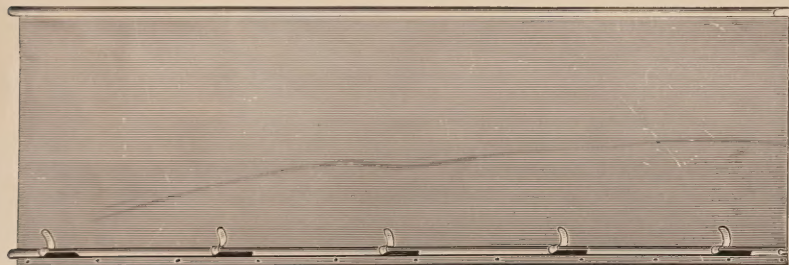


Fig. 92

Shows sheet as shipped, margin flange, to nail through in fastening roofing sheets to sheathing. Also extension cleats, cut to sheet, turned over standing seam before closing seam with tongs.

Fig. 93



Shows sheet with extension cleats turned into position, and inside standing seam well closed with tongs ready to lay on sheathing boards.

This is our latest patent in Steel or Iron Roofing, and we consider it the nearest to perfection in details of any Metal Roof on the market. It is introduced more for general use on the best class of both city and suburban residences, cottages, and ornamental stables and buildings. We do not intend it for use on buildings requiring a heavy gauge of iron; but for use where tin, slate or shingles have been the chief roofing materials, this new roof is destined to supersede them. We make it out of steel sheets, standard or 28 gauge, weighing respectively (after laying) 80 pounds to the square. We intend that this roof shall be carried in stock by all good and responsible hardware dealers, stove dealers and tanners, just the same as they now carry stocks of tin ready for any emergency, and in lots so they can fill orders of from $\frac{1}{2}$ to 100 squares.

PAINTED OR GALVANIZED

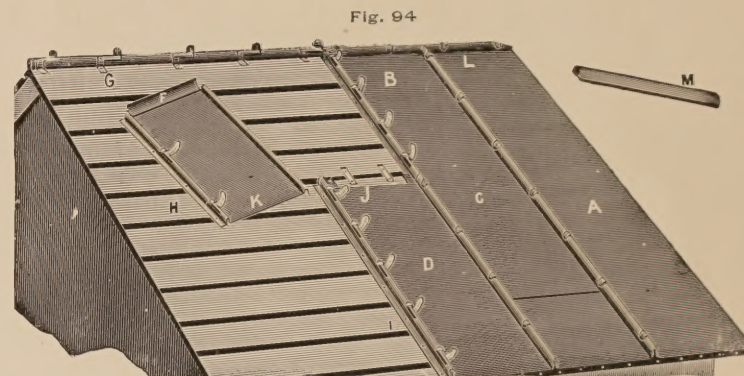


Fig. 94

Shows manner of applying Standing Seam, supplied with Extension Cleat.

A—Roofing laid. B—Part of sheet finishing ridge. C—Whole sheet partly finished, breaking side joints. D—Full sheet commencing third course and nailing flange. E—Extension Cleat turned into position. F—Top of sheet prepared to form comb at ridge. G—Ridge Cleat applied. H—Sheathing slats. I—Flange nailed to sheathing. J—End Cleats applied to cross joint seam. K—End joint formed at bottom of sheet to hook into sheet D. L—Ridge comb finished. M—Comb Cap, 8 feet long.

The very construction of this roof will convince any metal worker that it requires the VERY BEST grade of sheet steel, well annealed, to do the work that is required to form these roofing sheets, and allow the workmen to complete the work on the roof, without injury to the fibre of the steel. The iron or steel must have a close and long fibre, free from scale and hardness, and must have the ductility of tin, and the surface of the sheets perfectly smooth. To secure all these essential points, the best material MUST be used. Most persons are not aware that a well worked, box annealed, thin rolled sheet of iron or steel will give twice the service that a heavy gauge sheet iron or steel of poor quality and open fibre will give.

After closing the flange seam with tongs, place first sheet in position on sheathing board, and commence nailing through margin flange of sheet every 9 inches, to securely fasten the same to sheathing. The forming of the end joints, etc., and fitting of corners, hips, valleys, and attaching sheets to box gutters, flashing around chimneys, skylights, and parapet walls, is done in just the same manner as when laying our Pressed Standing Seam Roofing, except no tongued cleats are used. See Paint and Cement directions.

The great advantage of the Extension Cleat Roofing is that a flange is provided, through which the nails are driven into the sheathing, at such intervals as may be deemed necessary, and it also provides a continuous cleat to hold the adjoining sheets. Said cleats are cut directly from the sheet, and is not a separate and distinct piece, as in all other styles of Steel Roofing—they use separate cleats. This style of roofing, although costing more to manufacture, which makes it a few cents higher to the agent, will prove a great deal cheaper in the end. 1st. A good workman can lay more squares per day than any other kind of Steel Roofing. 2d. We know our waste is less. 3d. The Roofing and Attachments are all complete in one sheet, containing 16 or 20 square feet of surface. 4th. We have less pieces of trimming to handle.

Sheets 2 feet wide by 4, 5, 6, 7, 8, 9, and 10 feet long. General stock, 8 feet.

Always recommend the use of a layer of paper between the sheathing and the steel roofing. This prevents condensation and prolongs the life of all Metal Roofs

V CRIMPED IRON ROOFING

(OLD STYLE.) Machine Patented June 7, 1887

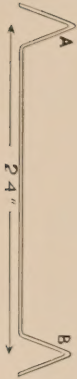
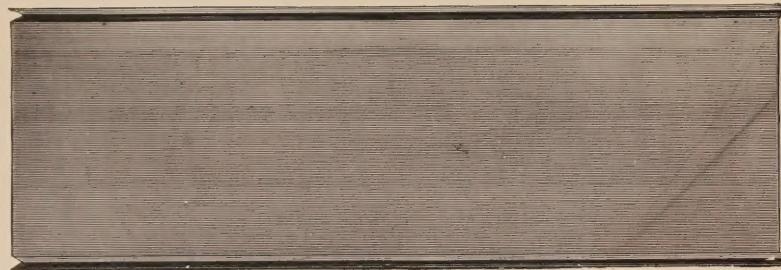


Fig. 95



V Crimped, plain centre, 4 to 10 feet long. Descriptions, pages 30 and 31.

For Shed Roof, or for cheaply constructed buildings, the V Crimped Roofing will answer, although we do not recommend it for general use. It has many serious faults that are overcome only by—not using it at all—or by using our various devices, as described in Departments 1, 2 and 3 of this Catalogue.

This style of Iron Roofing has been used more extensively than any other kind; in fact, the sales of all other styles combined would not equal the sales of the V Crimped. The fact that it is the oldest device used for putting on sheet iron roofing explains why so much is used and why it is so well known. The manufacture of iron roofing for a number of years was confined to one or two firms, and the principal consumers were large manufacturing firms, individuals not adopting its use until within a recent period, as they confined themselves to the use of slate, tin and shingles for covering dwellings, warehouses, barns, etc. However, within a few years, numerous patents for improved roofing devices have been issued. Inventors have given this subject great study and spent large sums of money in machinery and experiments, and now various styles of Iron Roofing are furnished by many firms, working under different patents, *all of which excel the V Crimped*. Iron Roofing, to be effective, should possess the following points: 1st. Be so constructed as to resist the elements. 2d. Be easily applied. 3d. Be so constructed as to avoid waste in fitting angles, valleys, and around openings.

Three-Crimped Siding or Roofing Generally used for Common Metal Siding

Fig. 96



Shows V Crimped Roofing with centre crimp.

measure, prevents loosening by contraction and expansion and the leaking of the water over the seams, thus making *our manufacture* of this style of roof the most desirable to use when one wishes to use a V Crimped Roofing at all.

There is but one series of Iron Roofing Devices ever yet offered to the public that combines all these essential points, and these are manufactured by us under the Sagendorph Patents.

Our V Crimped Roofing has the crimps so made as to approach a Standing Seam, thus binding the sheets firmly at the edge, in addition to the nailing. This, in a

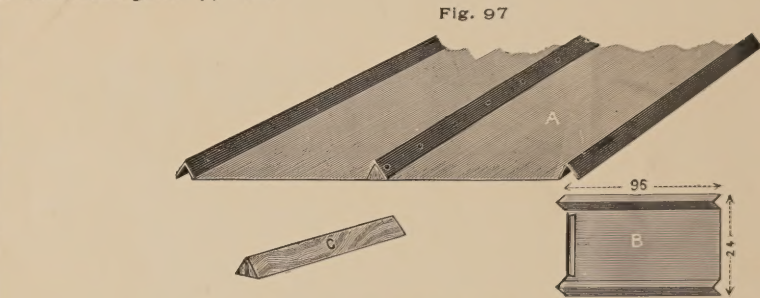


Fig. 97

Shows V Crimped Roofing (old style), using V Stick Centre.

A—Represents manner of laying Sheets upon sheathing slats or rafters. B—Sheet crimped. C—Wooden strips used between the V Crimps to stiffen them, and allow for driving nails through the Sheet to fasten Sheets and Stick to Sheathing or rafters.

A—Metal Cap made in lengths of 2 to 8 feet, and shipped as in Fig. 98. D—V cut opening, are made in the cap after the roofing is all laid, as the crimps in the roofing run in courses, do not terminate alike on opposite sides of pitch roof at comb, therefore, it is desirable to have the cap solid at edges and let the workmen fit the cap on the ridge after the roof is laid, mark the places on both sides to be cut out, then take the snips and cut a V piece out; this will allow the cap to fit nicely over the crimps and provide a perfect capping for ridge, keeps out the wind and rain, and also makes a fine and durable finish. B—Two sides of the roof laid to ridge showing the crimps and ends of sheets meeting. C—Combing Cap cut out and applied. To fit one joint of combing cap at ends over an adjoining one, snip the ends in two inches, nail in the two-inch flange and then slip the next piece without cutting into the snipped end; this will form a slot cut joint, covering the nails and prevent leakage from rain. This cut shows the roofing hooked into a box gutter, as in Fig. 83, Page 27.

Fig. 98



Shows Metal Combing Cap, used with Standing Seam and V Crimped to finish Ridge and Hips. The above Capping made to order, in odd sizes, to suit the building for which it is to be applied.

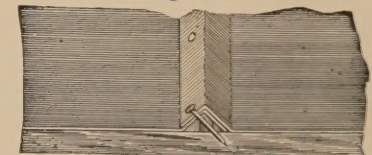
Fig. 99



Shows how to make Cross Seam Joint.

Always cleat Cross Seams, same as in Pressed Standing Seam, Page 26, Fig. 78.

Fig. 100



Shows at what point to drive Nail on Side Seam. Distance apart, 10 inches. We advise using a lead washer under nail head; this insures a tight seam, when nailed, and prevents the sun's rays from drawing the nail. The additional cost is small, when its advantages are considered.

Roll and Separate Cap Steel Roofing, Using Tongued Metal Cleat

Patented October 14, 1884, and January 16, 1885. Machine Patented February 26, 1889.

This style of Steel Roofing is especially adapted to flat roofs. Wherever flat seam tin or gravel can be laid (1½-inch fall to the foot) this roofing can be applied. Each roll, as shipped, containing 100 square feet after the standing seam is turned. This is formed by special tools, which we furnish or by using tinner's edging tongs and our squeezing tongs. These rolls are made up of 6¼ sheets, 8 feet long, or 5 sheets 10 feet long, patent swaged together. The joints are neatly and closely made. With this roofing we also furnish trimmings to complete its laying. We furnish the most perfect, simple, most easily and rapidly laid Roll separate Cap Roofing on the market. We use in this, as in our other style of roofing, the very best quality of soft annealed steel.

Fig. 101



Shows Roll Cap Steel Roofing as shipped.

Fig. 102



Shows the Roll Cap Steel Roofing and Trimmings.

Tongued Metal Cleat. Other devices either indent the cap or rivet it, both of which methods are very unsatisfactory, as in a short time they become loosened and blow off, thus causing leaks. This style of roofing being so simple, extra skill is not required to lay it, and it can be laid about as rapidly as other styles of roofing.

This is a very desirable roof where buildings have the roof pitched one way only, with only a slight fall and long courses. We offer you the best Roll Cap Roofing ever made.

Roll 50 lineal feet. (6¼ 8 feet or 5 10 feet) sheets patent swaged together.

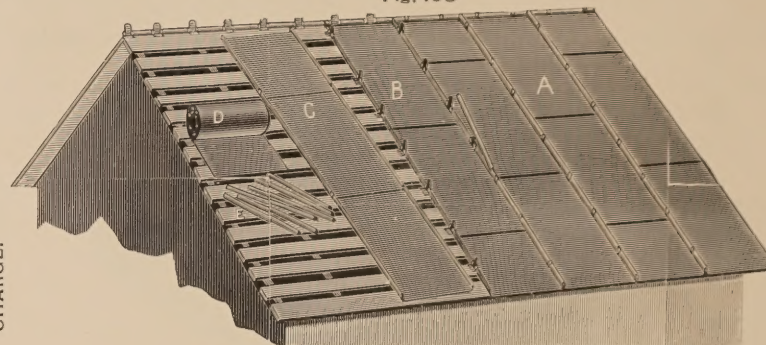
1—Metal Cap 8 feet long. 2—Roll of Sheet Steel Roofing. 3—Metal Cleat as shipped. 4—Metal Cleat formed ready to place in position over Roofing sheet standing Seam—Fig. 103, letter B.

We would especially call your attention to our Metal Caps. We furnish them in 4 and 8 feet pieces, while other Roofing Companies supply them in lengths of 30 inches or under. One great advantage our roofing has over all other Roll and Cap Roofing is that the cap is held to the roofing sheet standing seam by means of our

When specifications are furnished we make rolls in lengths to suit the Rafter's without EXTRA CHARGE.

ROLL AND SEPARATE CAP ROOFING APPLIED

Fig. 103



Shows this style of Roofing in course of laying.

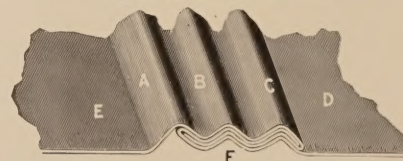
A—Roofing finished. B—One course placed against another, with Metal Cap partly placed and ready for the tongue of Cleat to be pressed over Cap and squeezed together. C—Course prepared ready to be placed in position, standing edge all turned. D—Roll of roofing. E—Metal Roofing Caps. The method of making hips, combs, and valleys is just the same as description for laying Pressed Standing Seam.



WHEN USING STEEL ROOFING
WE RECOMMEND our customers to place a layer of paper on the sheathing before applying the steel, especially on dwellings. The paper is a non-conductor and preserves a uniform temperature under the roof, also stopping condensation. It pays the consumer to use paper lining.

Fig. 104 shows our Patent cross-joints; the latter are made under heavy pressure and double counter sinking, and effectually prevents leakage or bursting, caused by expansion and contraction. The old method of simply locking and squeezing, or soldering has proven of little worth and no reliability can be placed upon such devices, either in tin or steel. The general cry has been after a season's wear, "burst joint." Our new devices, which we have experimented with during the past eighteen months, have proven a barrier against this trouble, and we now justly assert that no cross seam will leak or burst when made under our Patent Lock Seam devices.

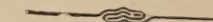
Fig. 104. Patented Feb. 9, 1892.



Shows Sectional View of our New Patent Cross-Joint. A new water-proof Joint.

E—Sheet proper. A—First lip. B—Central bead. C—Third lip. D—Sheet proper. Lip C and lip A are the last folds of each sheet, and conform closely to the upper and lower extension of main sheets. The central double folds of B closely hug the 4 folds and form convex ribs for upper side and concave for lower side and then swaged folds in beaded shape tightly squeeze the entire joint, so that no water can run between them and cause leaks; it is a positive water-tight Cross-Joint.

Fig. 104½



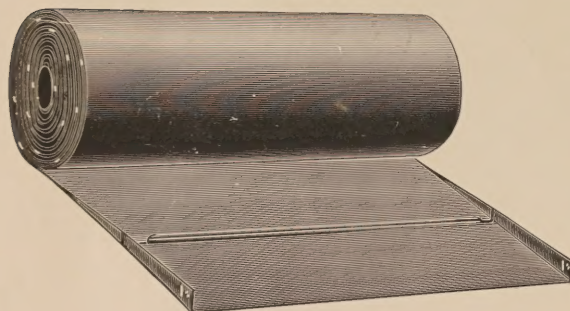
Shows Cross Joint Seam sectional View.

Roll and Cap Steel Roofing, Using Tongued Metal or Two-in-Hand Cleat

With Our Gum Filled Caps for Flat Roofs, having Long Water Runs

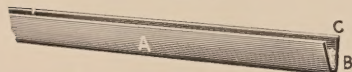
Patented October 14, 1884, and January 16, 1885. Machine Patented February 26, 1889. Patented June 18, 1889, and April 8, 1890.

Fig. 105



Shows Roll with 1 inch turned on the edges, ready to lay and cleat. Using metal cleats as shown in Fig. 107.

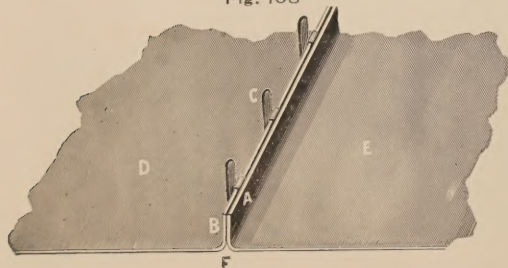
Fig. 106



Shows Cap filled with Gum Filler for placing over Standing Seam as in Fig. 108.

A—Cap. B—Filling. C—Open edges of Cap.

Fig. 108



Shows standing Seam turned, cleated and butted ready for placement of filled cap, as in Fig. 106.

A—1-inch single edge. B—Second sheet with 1-inch edge butted close to A. C—Two-in-hand cleat. D and E—Sheet proper.

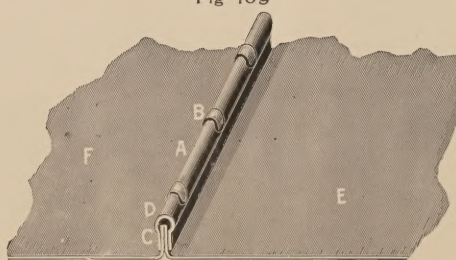
Tongue Cleat.

Fig. 107



Shows Tongue Metal Cleat as shipped.

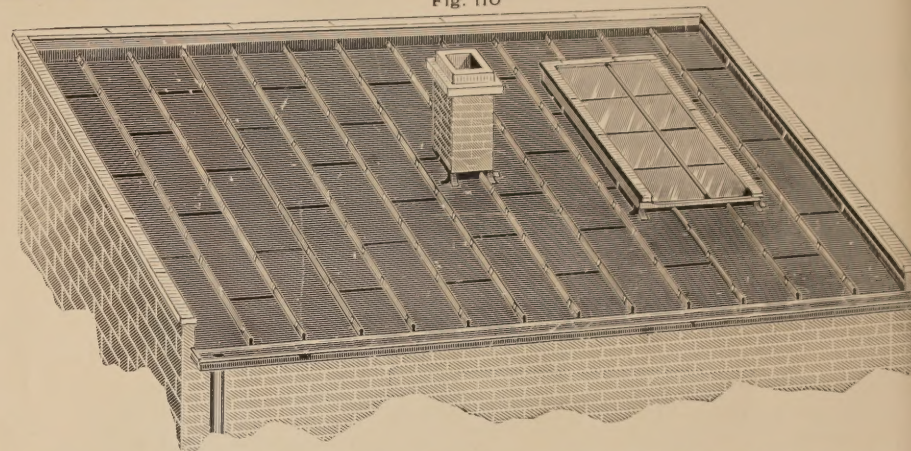
Fig 109



Shows Standing Seam finished with filled cap.

A—Cap closed. B—Cleat turned and closed around Cap. C—Edges of sheets in Standing Seam and Gum Filler. D—End view of finished seam. E and F—Sheet proper.

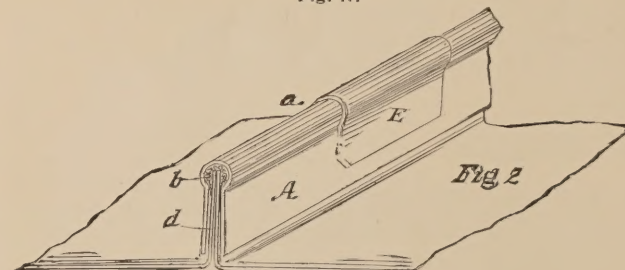
Fig. 110



Shows the application of our Roll and Cap Steel Roofing with our Gum Filled Cap, in a flat store building, with less than 1½ inch fall to the foot. Also shows parapet wall flashings, chimney flashings, skylight frame flashings, and roofing sheets hooked into iron box gutters.

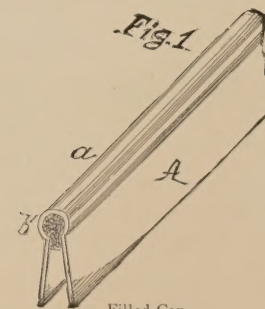
NOTE.—This mode of applying is the same as on page 31, and the same roofing devices, except filling the cap with powdered mineral and liquid gum.

Fig. 111



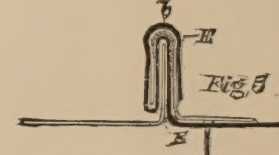
Filled Cap Seam closed with Tongs.

Fig. 112



Filled Cap.

Fig. 113



End View Filled Cap applied before squeezing tight.

FOR PAINTING THE ROOF,
Mix ten pounds dry paint to one
gallon boiled linseed oil, and one
pint japan drier.

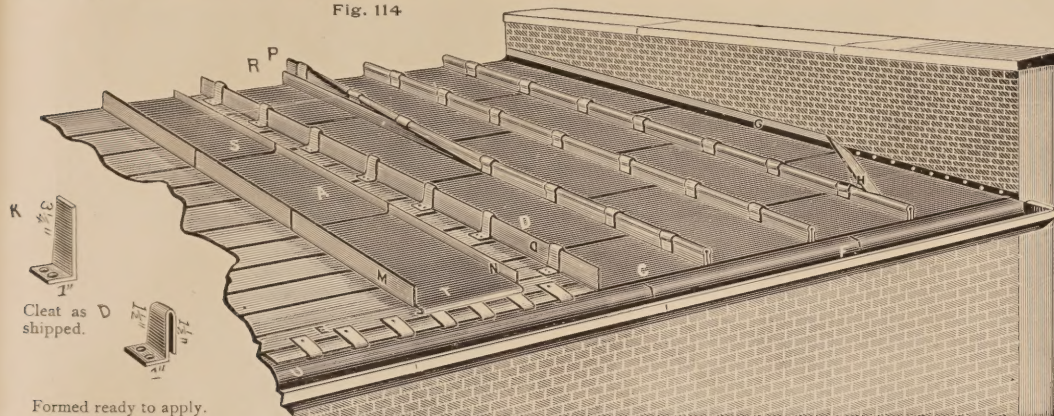
IT IS NOT WHAT WE SAY, BUT WHAT OUR CUSTOMERS RECOMMEND, AND OUR GOODS FILL THEIR REPRESENTATIONS

SELF-CAPPING STEEL ROLL ROOFING SUPPLIED WITH PATENT SWAGED CROSS SEAMS

Patented February 26, 1889

This Style of Roofing is quite popular with the tinning trade, as it is similar in applying to Standing Seam Tin roofing, quickly laid, adjusts itself to uneven surfaces of sheathing, or over old shingles. Directions at large, on this page, apply to this method of placing on cleat.

Fig. 114



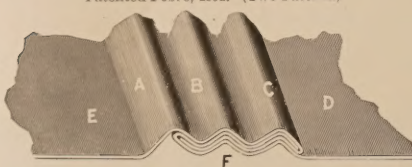
Formed ready to apply.

Shows roofing being laid on roof with pitch one way, and box gutter, building having fire wall at one end; manner of finishing and counter-flashing the same.

A—Course edged up at sides. B—Box gutter lined with steel. C—Roofing course edged at bottom and hooked into box gutter edge. D—Course laid and partly finished. Side cleats applied. E—End cleats in place on folded edge of gutter lining. F—Fibre counter-flashing applied to edge of roofing turned up and to parapet wall. G—Fibre flashing (see Cement directions). H—Cleats as shipped, and I—Bent ready to apply. J—Long edge turned 1 1/2 inches high. K—Sheet edge turned 1 inch high. L—Long edge partly turned to for cap, by use of double seamer, Figs. 147 and 148, making the outside cap entire length of standing seam, end view, Fig. 116. M—Cleat outside fold, finished. N—Foot of cleat nailed to sheathing, as in Fig. 114, letter A. O—Roofing plate, high edge. P—Roofing plate, low edge, under cap. Q—Single edge butted against high edge in position to receive the long edge turn to form the cap. R—Full course cut to right length and edged ready to put in place. S—The cleats are intended to be placed 12 inches apart, and two wire nails driven in the foot flange that rests on the sheathing. T—Lock turned to hook into gutter flange. U—Gutter flange turned one inch, then cleated, as in E.

Patented Feb. 8, 1892. (Two Patents.)

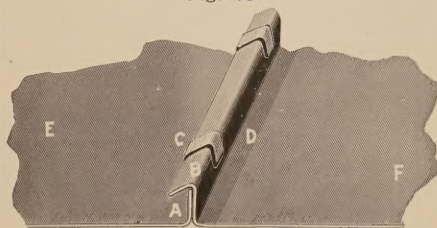
Fig. 104



Shows Sectional View of our New Patent Cross Joint. A new water-proof joint.

E—Sheet proper. A—First lip. B—Central bead. C—Third lip. D—Sheet proper. Lip C and Lip A are the last folds of each sheet, and conform closely to the upper and lower extension of main sheets. The central double folds of B closely hug the 4 folds and form convex ribs for under side and concave for upper side to the weather, then swaged folds in beaded shape tightly squeeze the entire joint, so that no water can run between them and cause leaks; it is a positive water-tight Cross Joint.

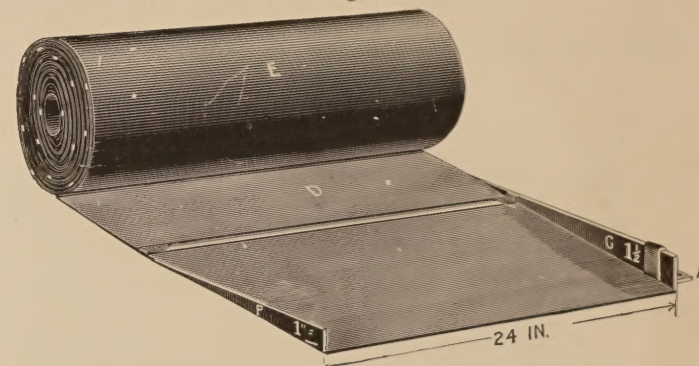
Fig. 116



Shows Standing Seam, half thrown over with double seamer or mallet and dog seamer.

E—First course. A—1-inch standing seam. B—Top of seam with oval roll. C—Cleat fold. D—Outside edge of seam formed from main sheet, 1 1/2 inch high, and turned over 1 inch. F—Second course.

Fig. 115



Shows Roll of Steel Roofing. A—Cleat applied. C—Long edge turned 1 1/2 inches. D—Cross Patent Swaged Joint. E—Roll proper; 50 lineal feet, 26 inches wide. P—Edge turned 1/4 inch high.

DIRECTIONS FOR LAYING ROLL ROOFING No. 1

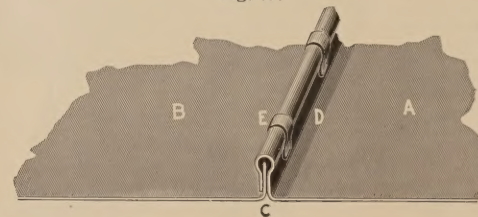
Measure the distance from eave to comb (of roof); cut strip from roll the length required; turn the outside of the first strip you lay (when you commence) down over the barge 1 inch, and nail it to the barge; then take the 1 1/2-inch tongs, and turn up the other edge, nail the anchor part of cleat to the building, close up against the wide standing edge, and bend it over, press the cleat close; place cleats about 18 inches apart. Figs. 116 and 117.

Second Strip.—Tong up first side 1 inch and second side 1 1/2 inches; slip the inch edge up against the 1 1/2-inch edge of the strip laid, then turn the wide edge over the narrow one with the seamer—the seam is then closed by squeezing it tight with tongs—the end of cleat comes back over the top of seam which holds the sheet with wide edge. When there is a piece of roll left, hook it on to the next roll and pound down the seam; by doing this there will be no pieces and there will be no waste.

Comb and Hip Seams.—First pound standing seam over flat from 6 to 8 inches from comb; if the ends are not even, trim them. Allowing a projection over the centre of comb of one inch, tong back, with inch tongs, so it will be on a slant with opposite side. Lay the other side of roof; let the sheet extend 1 inch over part tonged back at comb (or hip); when both sides of roof are laid, catch hold on both sides of comb (with seamer) and bring up both edges straight; the edge on last side laid stands 1 inch higher than the first side; turn the wide edge over the narrow one, and you have standing seam along comb.

Gutters.—Take strip length of gutter, turn outside edge over 1 inch and nail; then bend the sheet down into the gutter so that it fits down close, turn back of gutter part way up, then turn edge over on upper side or edge 1 inch U shape, then cleat it as in Fig. 114, Letter E, so you can hook roofing strip to this gutter edge; when the strip is hooked to gutter, pound it down close with mallet.

Fig. 117



Shows Standing Seam of Roll Roofing finished.

A—First course with 1 1/2-inch seam turned over 1-inch seam. B—Second course with 1-inch seam turned. C—Inside seam. D—Outside seam. E—Cleat folded and closed with standing seam and roofing paper.

Valleys.—You put in valleys by fitting sheets down close in valley, and turn edge close on each side and cleat same as for back of gutter (Fig. 114), then cut sheets so as to hook to valley, and pound it down. See Fig. 114.

Our Imitators are Numerous; but
as Makers of Standard Metal
Goods we will always
Lead.

CLUSTER STEEL SHINGLES

FOR ROOFING, MANSARDS AND SIDING. STOCK SHEETS 81 TO 120 INCHES LONG

Cluster Steel Shingles, Laid on Mansard and Dormer Windows, having Box Gutters

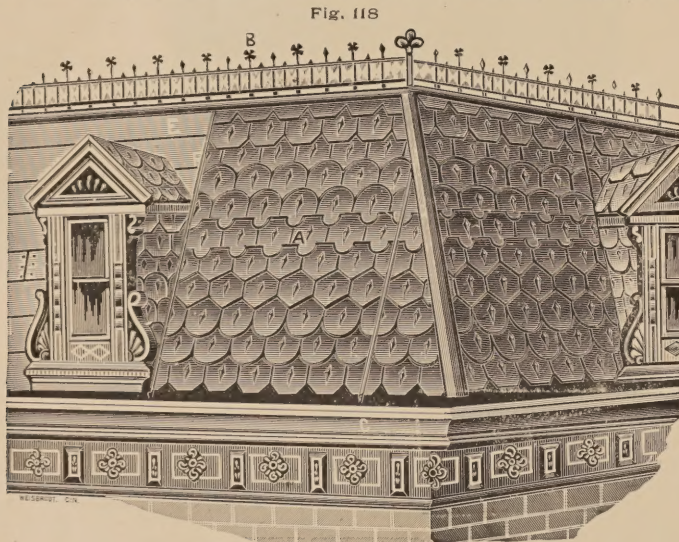
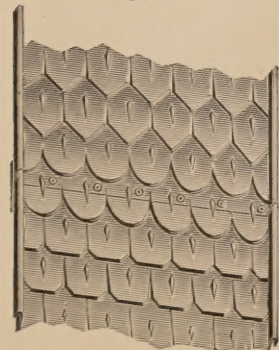


Fig. 118

Shows our Steel Tile Shingles, applied to Mansards.

A—Mansard partly covered. B—Iron Cresting. C—Box Gutter Cornice. D—Dormer Windows, covered side and top. E—Sheathing Boards. F—Beaded Edges or flat margin Lap on cluster sheet. Sheets made in length, 2 to 10 feet; width, 25 inches.

Fig. 119



With Pressed Standing Seam Edges, using Two-in-Hand Cleat, as in Fig. 122.

Shows lapped cross joints and mode of fastening, using lead washers and wire nails; at top of sheet paint the upper end of shingles with thick paint, then lap in grooves the next sheet; press it down into the under plates, and nail between each one of tile, using the lead washer with each nail. This will make a neat and perfectly water-proof joint.

Fig. 2

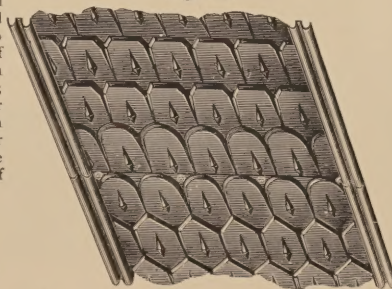
Shows 1 and 1½-inch No. 13 Wire Nail.

Fig. 1



Shows Lead Washer.

Fig. 120



Shows Cross Joint made with Beaded Standing Seam.

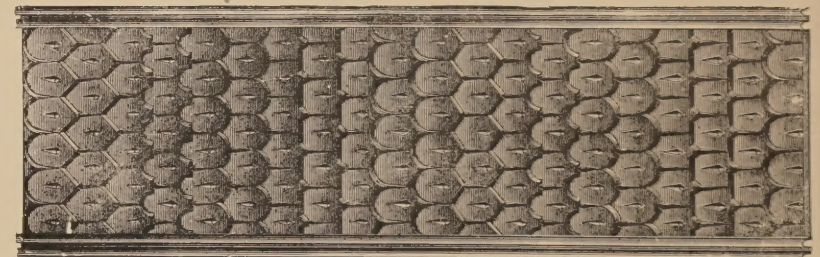
The Cross Joint of this Lap is made by lapping the bottom course over the upper course of lower sheet and painting between the plates, then nailing, using lead washer under nail head.



CLUSTER STEEL SHINGLES

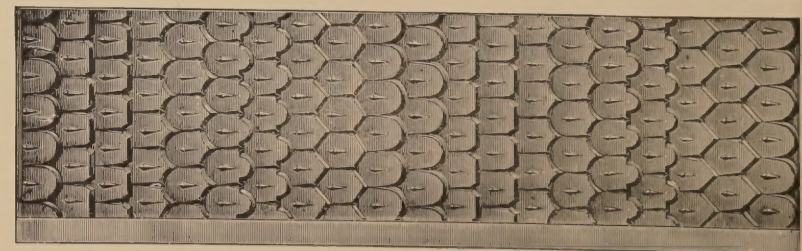
Cluster Steel Shingles, 81 or 120 inches long, Standing Seam.

Fig. 122



Cluster Shingles, 81 or 120 inches long, with Double Bead Edges, for Mansards.

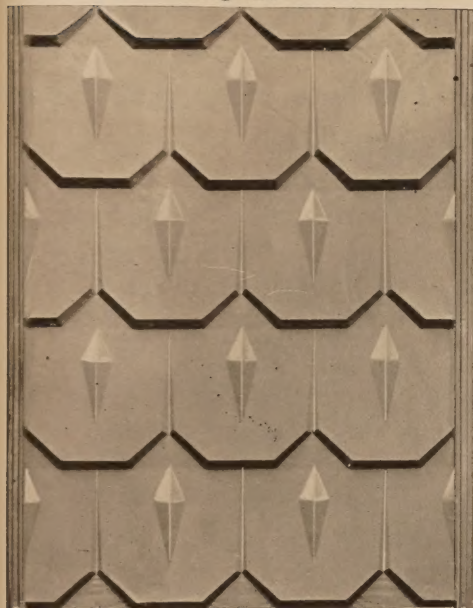
Fig 123



Cluster Shingles, Flat Edge, for Lapping at side and end. For Gables and Bulk Fronts.

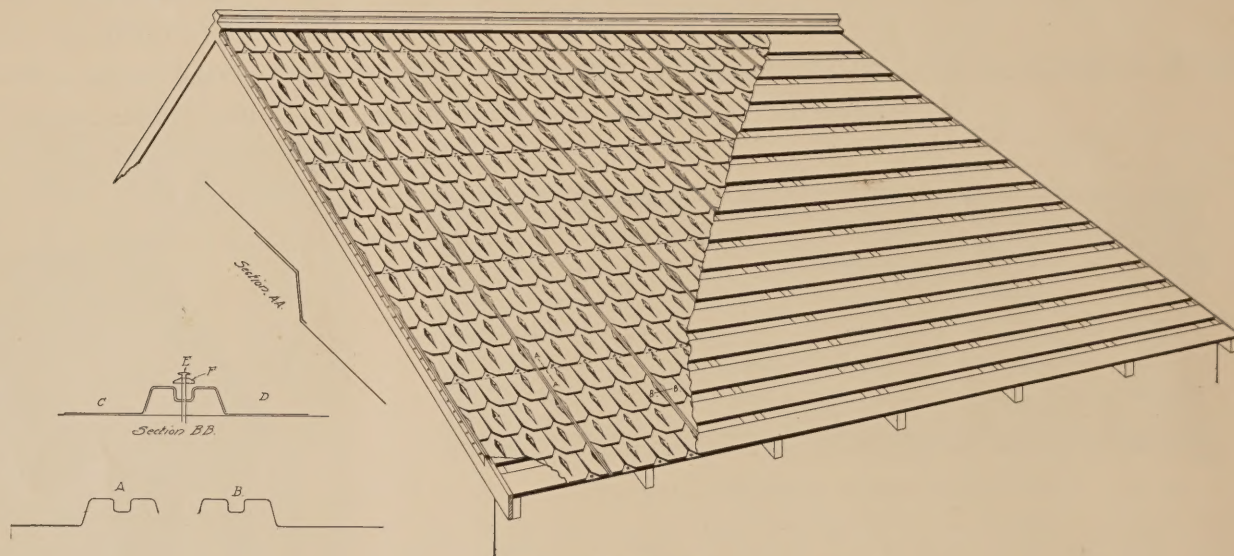
ELIZABETHAN TILE PLATES

Fig. 124



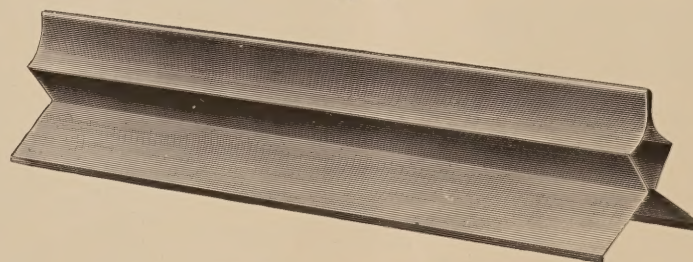
Elizabethan Tile.
Size, Centres, 25 x 32 inches.

Fig 125



Elizabethan Tile Plates.
A—Side Seam. B—Overlapping Side Seam. C, D, E and F shows Side Lap, Nail and Lead Washers.
Section AA shows cross lap.

Fig. 170



Shows Fancy No. 2 Ridge Cap.
Painted Steel, per lineal foot 14 cents
Galvanized Steel, per lineal foot 16 "
Ends charged as one foot. 15-inch Finial, each \$3.00.

Fig. 171



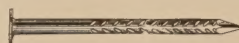
Finial for No. 2 Ridge Cap.
Height, 15 inches. \$3.00.

Fig. 1

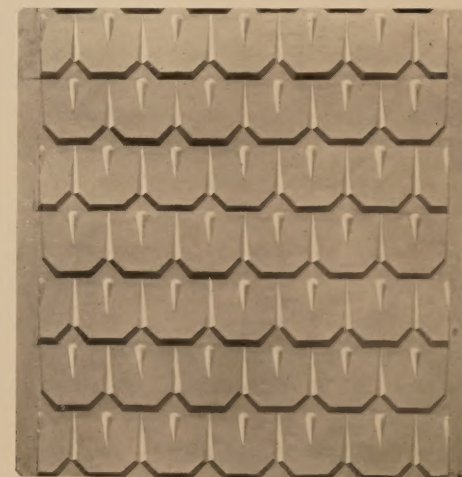


No. 12 Washer

Fig. 2



1 1/2-inch Nail.



Cluster Tile. Size, 25 x 120 inches.
Flat Margin for Siding Gables. See Fig. 118, page 34. All plates
on page 34, Figs. 121, 122 and 123 are stamped like
Fig. 126, with double beaded or standing seams.

STEEL CLAPBOARDING AND CORNER BOARDS

PATENTED MAY 31ST, 3D, AND SEPTEMBER 27, 1887.

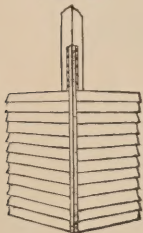
Using Convex and Concave Corner Boards. Superior to Corrugated Iron, Wood or Stucco, One-third the Cost of Brick or Stone. Rated Same as Either by the Insurance Underwriters. Neat in Appearance, Easily Applied. Its Lasting Qualities Compare with Brick or Stone.

Fig 127



Sheet Steel Clapboards, 4 to 10 feet long, 26 inches wide.

Fig. 128



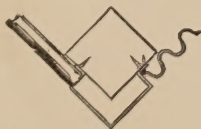
Shows Convex Corner Board applied, also Clapboards laid on each side, partly finished.

Fig. 129



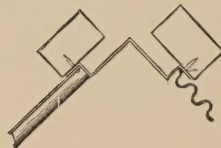
Shows manner of finishing the corner of building with Metal, made convex or concave.

Fig. 130



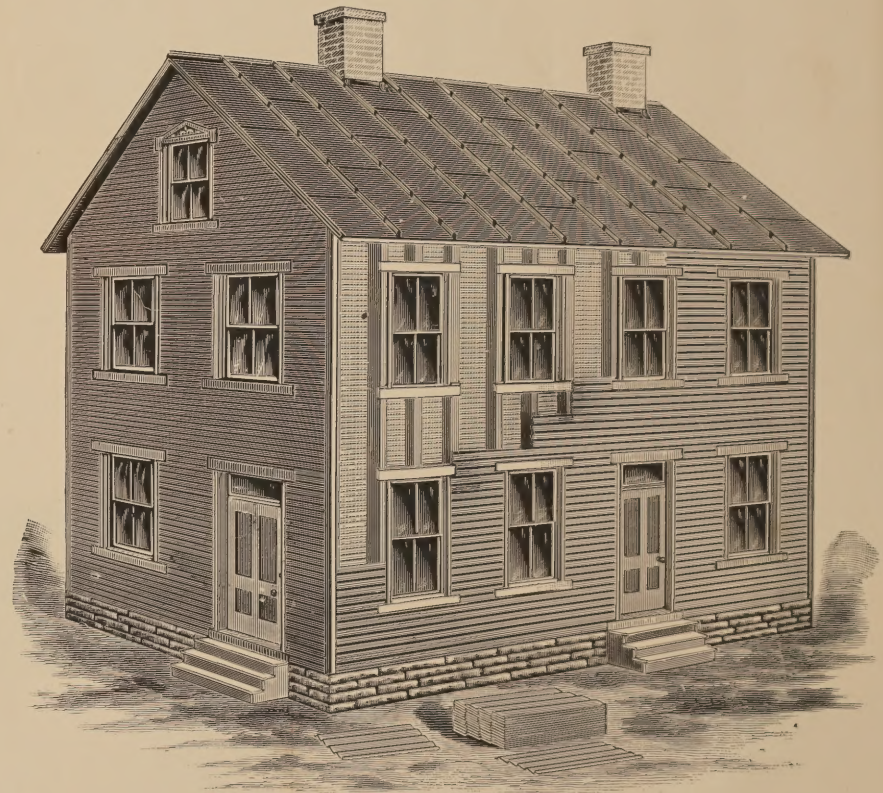
Shows application of corner board to corner of building.

Fig. 131



Shows application of corner board to inverted corner.

Fig. 132

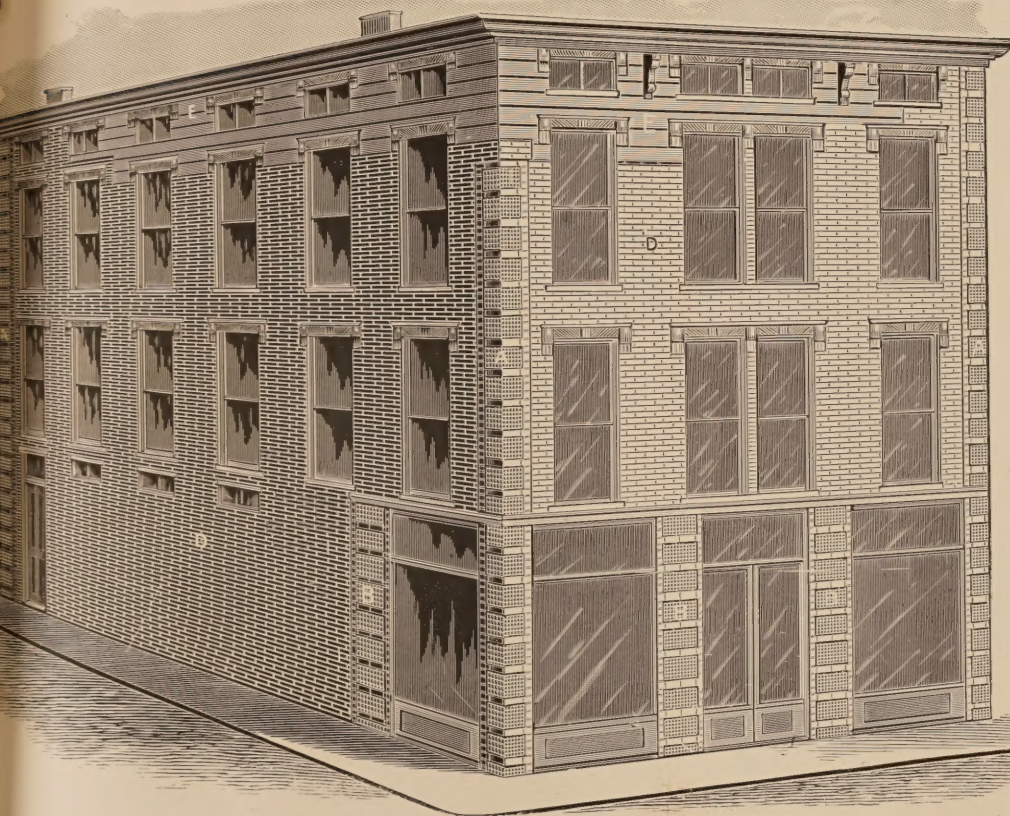


Shows a frame house covered with iron, viz.: Pressed Standing Seam Iron Roofing and Metal Clapboarding on sides. This makes a thoroughly fire, lightning and weather proof house. Neat, economical, durable; saves insurance, retains paint longer, costs less, and requires less material to repaint; lighter, simpler in application; can be applied on studding 24 inches apart, or over rough sheathing; no waste in applying. Made in lengths 96 inches and 5 panels to the sheet, 4 1/8 inches wide, as shown in Fig. 127.

PRESSED STEEL BRICK

THE CROWNING SHEET STEEL PRODUCT

Fig. 133



Shows frame structure covered with our Steel Bricks and trimmed with our Steel Stone Panel, Window Caps and Cornice. Neat, durable and cheap, as compared to Stone or Brick. Its exterior is fire-proof and substantial.

A—Sheet Steel Stone Panel corners. B—Sheet Stone Panel posts. D—Steel Brick. E—Sheathing.

BE ORIGINAL IF YOU WOULD ACHIEVE DISTINCTION

NOVELTY OF THE AGE

In Laying, Put Concave Side Always Out
(Mortar Line)

This product was placed upon the market early in 1887, and we felt confident it would receive its share of patronage among Contractors and Builders. In this we have fully realized our anticipations, and our capacity has been fully taxed to fill the orders, from covering a small front of 100 square feet to 39,000 square feet, for one single building.

If care is taken in its application, and the painter does neat work in striping,

WE DEFY ANY ONE TO PRONOUNCE IT INFERIOR TO PHILADELPHIA PRESSED BRICK IN APPEARANCE

The superiority over corrugated iron, of any size, and flat metal surfaces, has been well established.

Directions for Putting on Brick Siding Over Wood Sheathing

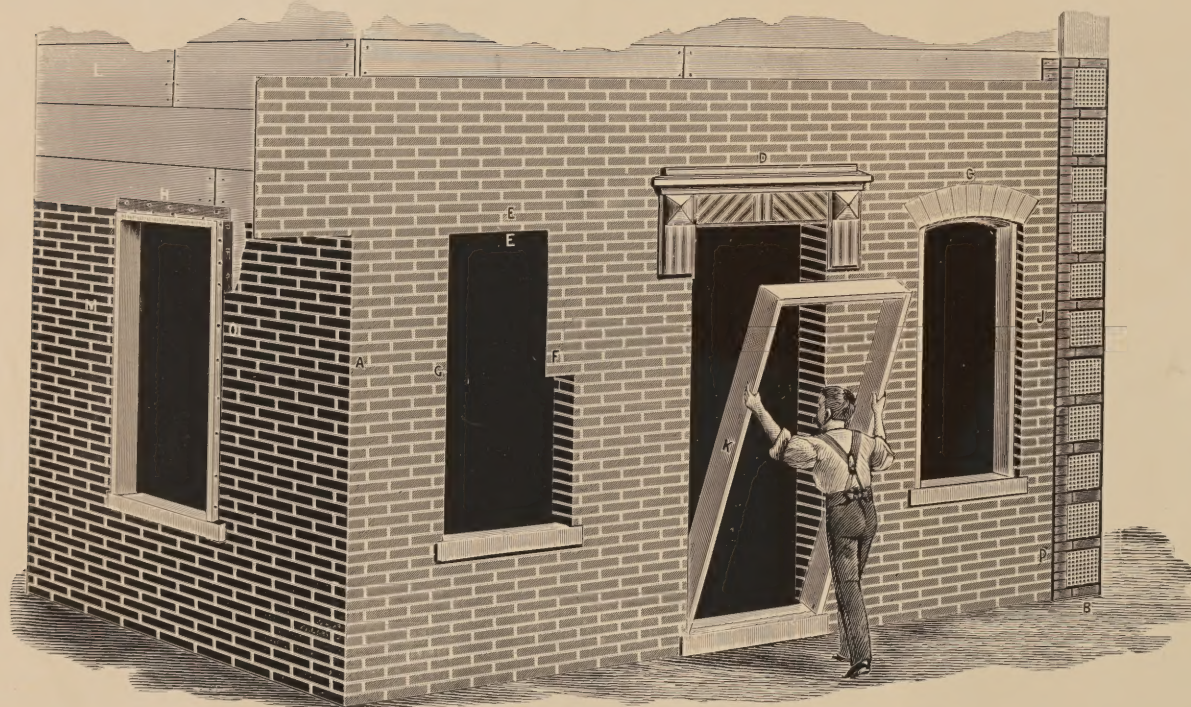
Superior to Corrugated! Superior to Wood! Equal to Brick! Gauge 26!

No. 1. With spirit-level and chalk-line, get the level of your building entirely around its base or top, and strike a line corresponding thereto. Place a full sheet of the siding around one corner of the building, allowing the end to extend 2 or more feet past the corner, or within eight inches of the corner, Fig. 142 (and so that the cross grooves are immediately over the corner), the lower edge of the sheet resting on the chalk-line or facing-board at bottom. Nail the sheet fast to the wall through the grooves sufficiently to hold it fast and to bring it down solid all the way along. Bend the projecting 2 feet around the corner (if projects) with the hands, using a mallet slightly to bring down any uneven places, or if as in Fig. 142. Lay around the building until you meet the commencement. Place the first sheet of the second tier over the first so as to break joints perfectly as in brick-work letting the half groove at the bottom of the sheet lap over the first and fit closely in the half groove at the top of the first sheet. At windows or doors cut the sheets about three inches above the bottom sill and the same distance from the side, then cut from the corner thus formed obliquely to the corner of the window or door space, and bend the steel with the hands down upon the window-sill and around the sides of the studding, and nail them fast. The window-frames fit in over these laps and show a complete brick finish. We use a No. 14 wire nail, which can be driven through the steel without punch except where it laps and is double. Always use nail-set to drive nail home. If Stone Corner Panel finish is used (Fig. 140), put these on first and use 1-inch thick board, the width of panel face to set in behind panel to make it solid.

No. 2. Commence at right-hand corner, about 8 inches from corner, as in Fig. 134, always applying first sheet at bottom of right-hand corner and lay from right to left on all four sides if they are to be covered. In starting first course, if the frame work rests on the ground, put a wood strip all around the foot 3 inches wide; this will allow the first course to rest on wood and not touch the ground, in which case it would gather moisture and in time rust out from under side. After first course is laid, if a piece is left, use this to start the next course, always have the nailing flanges as in Fig. 134, E and E, at top of sheet and end of sheet laid last, so that the next sheet will lap over flange at top and side and fit into grooves, and form perfect joints. We advise driving one nail in every third brick groove forming a square. This forms the sheet close to sheathing and keeps same from buckling.

卐 PERFECTION · STEEL · BRICK 卐

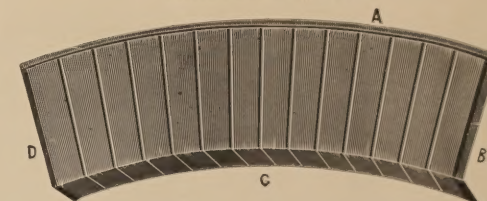
COVERED BY 10 PATENTS



Shows process of applying our Steel Brick applications of Stone Panel Corners, Oval Window and Door Caps. How to turn a corner with the plates when no corner finish is used; also how to apply and bend around door and window opening to represent a genuine Brick structure.

A—Corner finished with the Steel Brick Plate; this is accomplished by letting the plate project over the corner 8 or 16 inches, even with perpendicular mortar bead. Nail the plate fast on the side first, then take a board 4 inches wide by 1½ inch thick, place this against the projecting end of plate, and bend it around the corner to place on the side following, as in cut Fig. 134, above letter A, then nail fast and continue to next corner. B—Corner finished with stone panel as in Fig. 140, page 39. C—Window opening finished by letting the plate project over the opening 2½ inches and turning over on the inside of same and nailing and placing window frame in after it is finished. D—Door with Galvanized Cap, and opening finished with plate turned, and putting in door frame. E—Upper part of window, opening finished without caps, and margin of plate as in letter F, not turned, but ready to be, as in plate below. F—All turned and nailed. G—Brick Window Cap, made as in Fig. 135, arched; we also make them straight as in Fig. 136. H—Shows frame in, and projects 1 inch beyond sheathing. When like this, we recommend using angle stock ¾ inch by 1 inch, to nail on first, then butt the plates against the flange lip and nail. K—Putting in door frame after steel plates are applied. This illustration, if carefully studied, will convey the practical methods of applying our steel plate and attachments. No original stone or brick can equal these products for beauty and uniformity of finish, if the proper care is taken when putting on the different styles and designs we make.

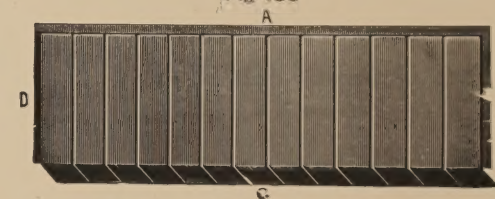
Fig. 135
Patented March 24, 1891.



Shows arch brick window or door cap.

Prices based on 48 inches in length, or under; all over 48 inches in length charged for in proportion.
Galvanized Steel, per cap, \$4.25.

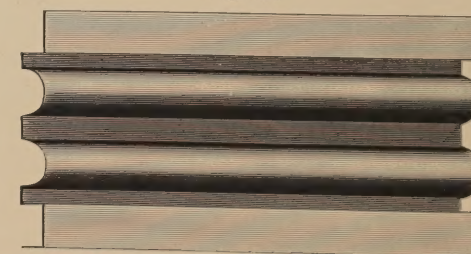
Fig 136



Shows straight brick window or door cap.

Galvanized Steel, per cap, \$3.75.

Fig. 137



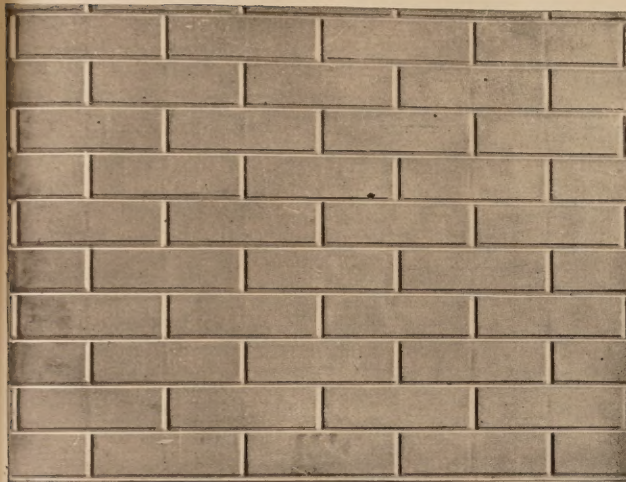
Shows Moulding Belt for dividing line on building when the belt is desired; it breaks the solid plain appearance and adds to looks very much. We make it in several designs and widths. Fig. 137 shows 12-inch girth, medium.

PRICES

Painted Steel, 8-inch girth, per lineal foot	15 cents.
“ 12 “ “ “	20 “
“ 18 “ “ “	28 “

For Galvanized, add 4 cents per lineal foot to the above.

Fig. 138



Plain Mortar Line. 30 x 96 inches.

Fig. 139

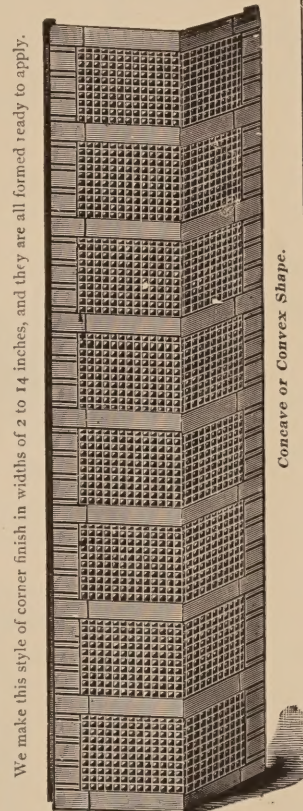


French Mortar Line, Steel Brick. 30 x 96 inches.

Beware of Infringement

Fig. 140

Steel Sheet Stone Panel for corner finish, when using our Steel Brick.



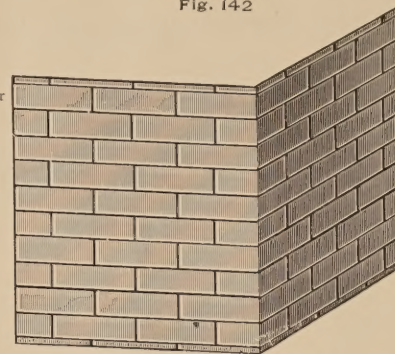
Concave or Convex Shape.

Shows our Imitation Sheet Steel Stone Panel 4 to 10 feet long, 4 to 14 inch face to the weather on each face; 1-inch offset at meeting of Steel Brick edges.

We make this style of corner finish in widths of 2 to 14 inches, and they are all formed ready to apply.

If Corner Stone Panel is used, put them on first, and back the inside of same with wood $\frac{7}{8}$ inch thick by the width of face of corner plate.

Fig. 142



Shows a sheet bent at right angles for fitting corners where the Stone Panel is not used.

This is done while applying. Let the sheet project over corner 8 or 12 inches; have the Horizontal Mortar Line even with corner of building. Nail the sheet to sheathing; then bend the projecting part carefully around corner and nail it.

Fig. 141



Shows corner finish made from the brick sheet, 4 inches or $\frac{1}{2}$ of a brick each side.

Fig. 143



Shows Steel Punch and Set, to be used in applying our Steel Brick. Per set, 40 cts.

Fig. 144



STRAIGHT SNIPS

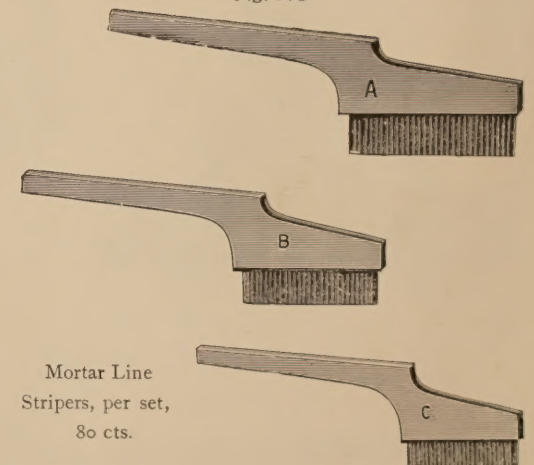
Snips, \$1.75.

N-Fig. 145



Hammer, 50 cts.

Fig. 146

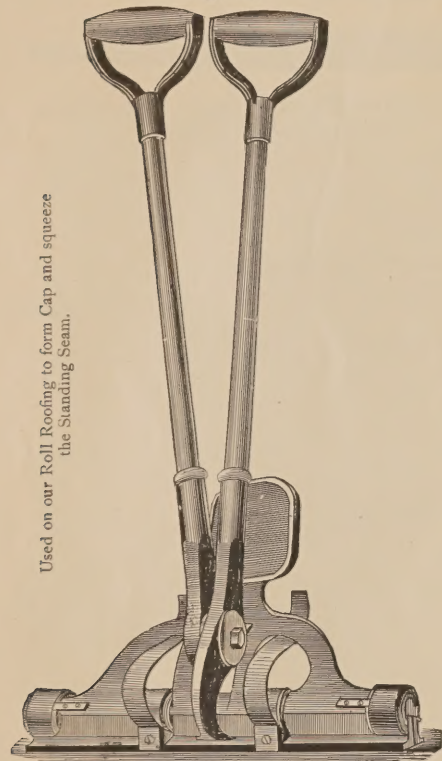


Mortar Line Strippers, per set, 80 cts.

These are all the tools necessary to apply our Steel Brick, and obtain a perfect piece of work; the strippers are in 3 sizes to accommodate the different lines of Mortar Reeds.

List of Tools necessary to use in applying any of the Manufactured Goods illustrated and explained in this Catalogue, to insure a perfect and durable job

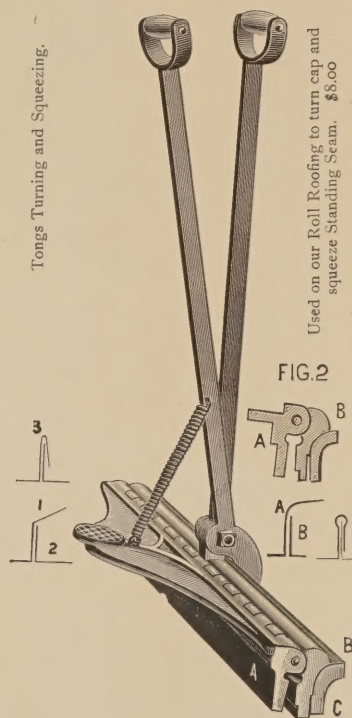
Fig. 147



Used on our Roll Roofing to form Cap and squeeze the Standing Seam.

Shows our Spring Double Seamer. \$9.00 net.

Fig. 148

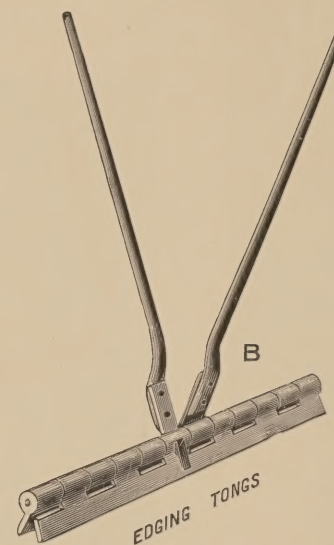


Tongs Turning and Squeezing.

Used on our Roll Roofing to turn cap and squeeze Standing Seam. \$8.00

FIG. 2

Fig. 151



Two sizes, 1 inch and 1 1/2 inches.
\$2.50 per pair. Used with Roll Cap Roofing and Roll Roofing.

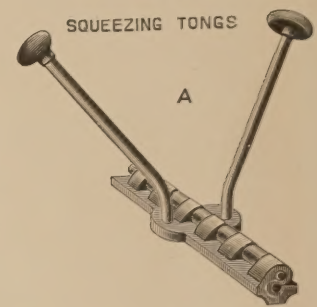
Fig. 152



E-JOINTER

Used on Pressed Standing Seam Roofing. 75c.
Crown Roll and extra Cleat V Crimped Roofing.

Fig. 149



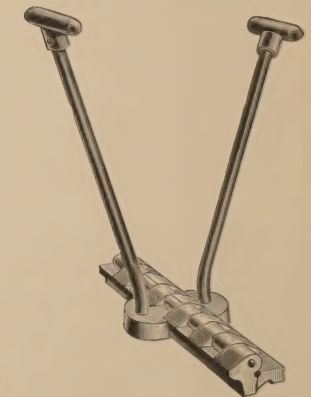
SQUEEZING TONGS

A

\$2.50. Used with Roll Cap or Pressed Standing Seam Roofing.

Fig. 150

SQUEEZING TONGS



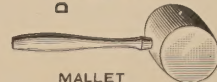
Used exclusively with Keystone Crown Roll.
\$2.50.

N-Fig. 145



50c. Used with all Metal Goods.

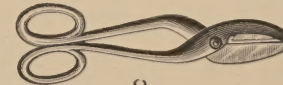
Fig. 154



MALLET

25c. Used with all our Roofing.

Fig. 144



STRAIGHT SNIPS

\$1.75. Used with all the Articles.

Fig. 153



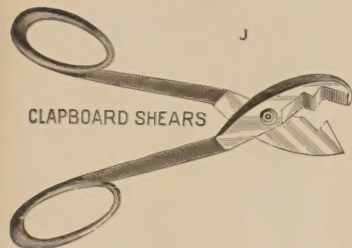
\$1.25. Used with Roll Cap, Pressed Standing Seam and Extension Cleat.

These tools are kept in Stock, and we recommend all Agents to use the set complete. To consumers, we send the necessary tools, and allow the same to be returned to us at their expense, provided none are broken.

THE PENN METAL CEILING AND ROOFING CO., LIMITED, PHILADELPHIA, PA.

List of tools necessary to use in applying any of the Manufactured Goods illustrated and explained in this Catalogue to insure a perfect and durable job

E-Fig. 155
Patented Dec. 28, 1886.

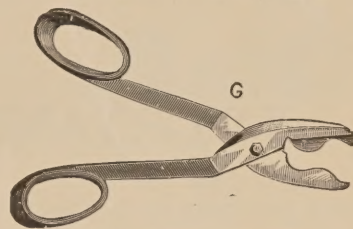


CLAPBOARD SHEARS

\$8.00. Used with Clapboards.

Fig. 156

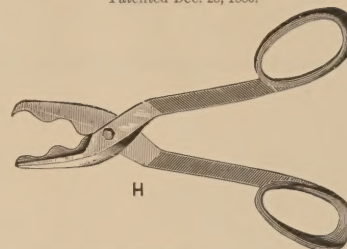
Patented March 8, 1885. Dec. 28, 1886. Aug. 14, 1888.



2 1/2-IN. CORRUGATED SNIPS
\$8.00. Used with 2 1/2-inch Corrugated Iron.

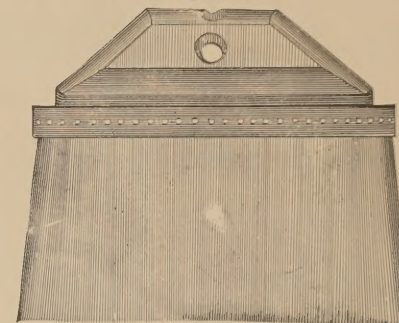
Fig. 157

Patented Dec. 28, 1886.



1 1/4-IN. CORRUGATED SNIPS
\$8.00. Used with 1 1/4-inch Corrugated Iron.

Fig. 168



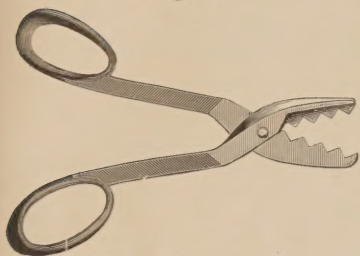
Shows 9-inch, Flat, Long Handle Brush. Price, \$2.50.

Fig. 169



Round 6-0 Brush. \$2.00.

L-Fig. 158

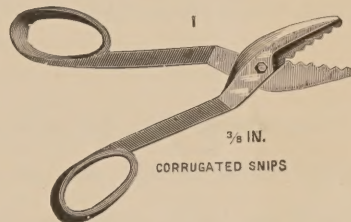


3/8-IN. DIAMOND SNIPS
\$8.00. Used with 3/8-inch Diamond Corrugated Iron.

Fig. 161

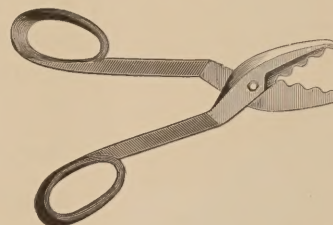
Fig. 159

Patented Dec. 26, 1886.



3/8 IN.
CORRUGATED SNIPS
\$8.00. Used with 3/8-inch Corrugated Iron.

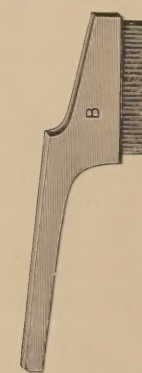
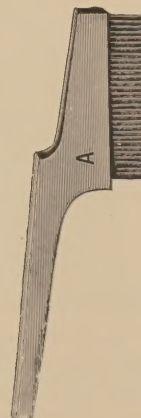
K-Fig. 160



3/8-IN. CORRUGATED SNIPS
\$8.00. Used with Corrugated Iron.

Fig. 146

Price per set (3), 80 cts.



Strippers for our Steel Brick

Fig. 143



Steel Punch and Nail Set for our Steel Brick.



Price per set (2), 40 cts.

Fig. 162



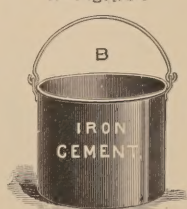
Flat 5-inch Brush. \$2.00. USED IN OUR PAINT AND CEMENT DEPARTMENT FOR FLASHING, etc.

S-Fig. 163



\$2.25. To be used on roof when painting last coat. Made of Galvanized Iron.

R-Fig. 164



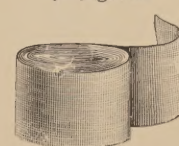
\$1.75. To hold our New Cement Made of Galvanized Iron.

O-Fig. 165



90 cts. Used for Preparing Flashing

P-Fig. 166



3 to 8 cts. per Roll. Flashing Fibre Roll, 1 to 4 in. wide.

Fig. 167



Sash Tool for Cutting In. 40 cts.

These tools are kept in Stock, and we recommend all Agents to use the set complete. To consumers, we send the necessary tools, and allow the same to be returned to us at their expense, provided none are broken

TO OUR READERS AND PATRONS



DIRECTIONS FOR MIXING

...THE....

DRY METALLIC PAINT

WE SHIP WITH ALL OUR

ROOFING AND SIDING ORDERS



PAINTING ROOFS OR CORRUGATED SIDING

To every 10 pounds of Dry Metallic Paint, add one gallon of Boiled Linseed Oil, and one pint of Japan Drier. Stir well, and let this stand and soak before using, at least 12 hours; then stir it well, and apply with flat brush or sweeps, as per our paint directions. One gallon will cover well 400 square feet of metal surface, if mixed as above. To make the paint any thinner only reduces the lasting qualities, and is not advisable.

PAINTING AND STRIPING STEEL BRICK

To every 12 pounds of English Red, add three quarts of Turpentine and three pints of good Boiled Linseed Oil; mix well and apply with a flat hand brush. If it sets with a gloss (and you desire it flat, to imitate natural brick), add more Turpentine; and after this coat has set, take white lead (or black) ground in oil, reduce its thickness one-fourth with Turpentine; and put a small quantity on a flat surface (pieces of glass or thin pieces of wood), and work this into the stripers; to fill the bristles; then stripe the mortar bead lengthwise, first using the largest stripers, the cross mortar line uses the medium stripers. You can make mortar line either black or white, to your taste in the matter. The steel brick can also be coated with salmon color (or medium yellow) and striped with four shades darker, blue, or red. Salmon-colored brick are all the rage now, and many architects specify this color on their latest architectural work in buildings.

Use Our Paint and Cement Directions, pages 43 and 44. Tool List, pages 40 and 41.
This will enable you to do a perfect job.

IMPORTANT NOTICE

To insure protection to the under side of **Iron or Steel Roofing and Siding, Clapboards, and Brick**; retain the warmth of the interior in the winter and exclude the heat in summer; also prevent condensation (or sweat) when the temperature is freezing or below, we recommend laying between the roofing and sheathing a layer of **Roofing Paper**. We keep four grades, known as follows:

First—Felt Paper Lining.	30c. per square,	-	-	-	(100 square feet)
Second—Asphalt Paper Lining.	40c. per square,	-	-	-	" "
Third—Glazed Paper Lining.	25c. per square,	-	-	-	" "
Fourth—O. K. Manilla (Asphaltum Filled).	45c. per square,	-	-	-	" "

This addition adds tenfold to the lasting qualities of either tin or steel when used for roofing or siding. We advise the use of one of the above with all our goods. O. K. is the superior quality.



We also keep in stock the best **Linseed Oil and Japan Driers** to supply our customers, put up in one-gallon to fifty-gallon packages.

One gallon of Linseed Oil and one pint Japan Drier mixed with ten pounds iron dry paint will cover 400 square feet, steel or iron roofing, one coat.

OBELISK AND ITS VIRTUES. DIRECTIONS

Fig. 172



Strictly Pure Pigments and Linseed Oil

BEST ROOFING PAINT IN THE MARKET.

The only durable and non-oxidizing Cement and Paint ever put on sale. It has stood the test of all elements for twenty years, in all parts of the country.

DIRECTIONS FOR APPLYING SAGENDORPH'S METALLIC PAINT ON METAL AND WOOD

(UNDER SAGENDORPH'S PROCESS.) Patented June 7, 1889.

First clean off the roof, removing all scaly paint or other matter, so that the surface will be firm and clean. Look carefully for all holes, broken seams, etc. If none, proceed to paint, rubbing the paint out well as you apply it. If any breaks in joints or seams, mark them with a scratch awl. Mark all holes made by rust or nails; then coat each place with the paint. Take good cotton unbleached muslin for our Patching Rolls; tear in strips large enough to cover one inch each side of the break; take a trowel and spread the cloth fibre with our cement; then lay it over the broken place, patting it down firm and smooth, and paint lightly over it. Put a small lump of cement into all rust and nail holes. Treat leaks around chimneys, flashings, in skylights or counter-flashings same as broken seams; then paint the whole surface. Keep the paint stirred and rub it out well. No drier is necessary. If the paint is too thick, add one quart of boiled linseed oil to the gallon. This paint can also be used for any kind of metal or wood which is exposed to the weather. When used on wood, add one-half gallon raw linseed oil to the gallon of paint. It is the only paint in the market that can be relied on. Our cement can also be purchased from our regular agent at a small cost. Always stir the paint before using.

Fig. 251

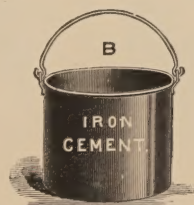


Fig. 251½



\$2.25.

\$1.75.



Shows buckets which are used on roofs while at work.

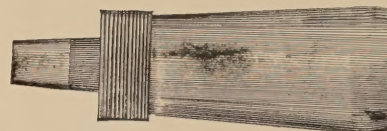
B—Obelisk Cement. A—Liquid Primer and Dresser. C—Brush.

Fig. 39



Sash tool for cutting in. 40c.

Fig. 40



Round 6-o Brush. \$2.00.

Fig. 254

Fig. 263



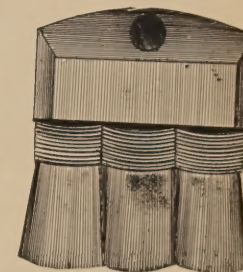
goc. Trowel used for Preparing Flashing. 1



Shows Cement and Paint Buckets, 1 to 10 gallons, cement 5 to 300 pounds.

Fig. 41

Fig. 252



Shows 9-inch, Flat, Long Handle Brush. Price, \$2.50. Flat 5-inch Brush. \$2.00. Shows 3-Knot Brush. Price, \$3.50.

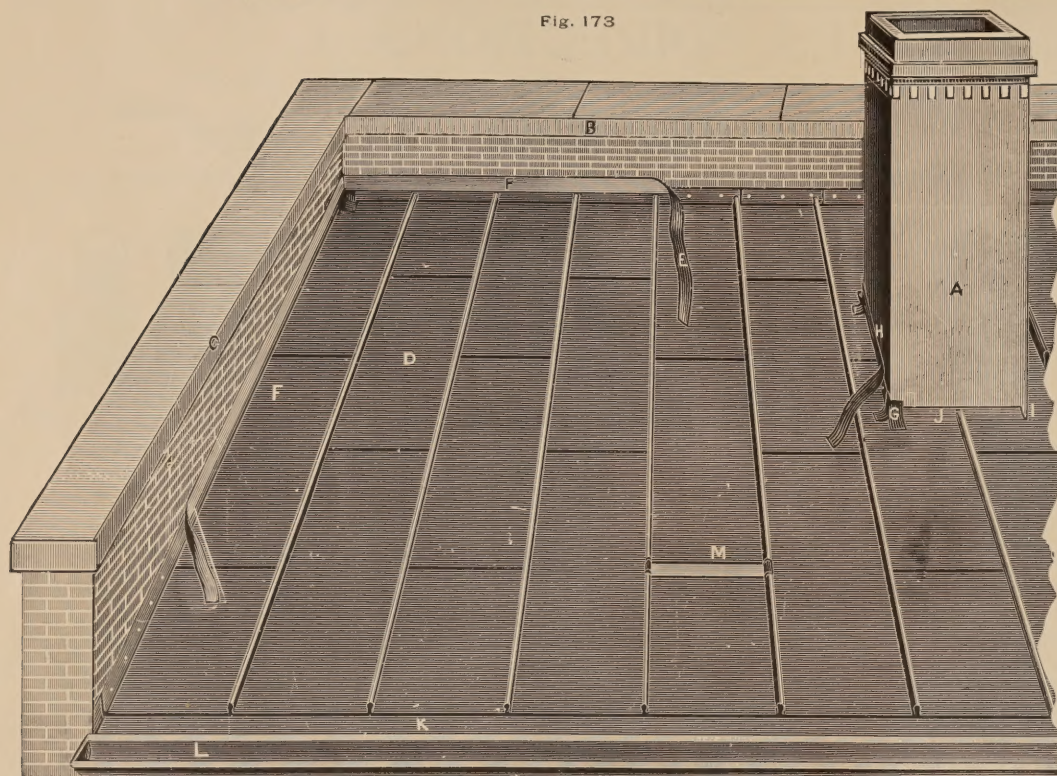
DIRECTIONS FOR APPLYING SAGENDORPH'S METALLIC CEMENT FOR STOPPING LEAKS

(Under Sagendorph's Process.) Patented June 7, 1887.

In applying this cement, the following directions must be carefully observed: First, paint all holes or breaks with our Sagendorph Obelisk Paint, and after that is done, apply the cement as follows: For small nail and rust holes, put a small lump of cement into the hole so as to cover and fill it, allowing the cement to stand a little above the surface. For broken seams, large holes, fixing chimneys, skylights or counter-flashings, the following must be carried out: Pages 18 and 6. First, take good cotton unbleached muslin, tear it in strips large enough to cover one inch each side of the break (our Fibre Rolls are prepared); take a trowel and spread the cloth fibre with the cement, laying the same over the break (painting or priming it with paint first), patting it down firm and smooth with your hands, and paint lightly over it. Be sure and allow enough cloth to cover each side of the break by one inch. After all the patching is done, paint the roof with our Sagendorph Obelisk Paint. If the roof has many leaks and requires a great deal of patching, it is best to do the patching and let it stand a day or so before coating the entire surface. This gives the patches a chance to set. If our directions are carried out, your roof will remain free from leaks for years. This cement, in connection with the cotton fibre patches, make perfect contact of metal to slate, brick, stone or mortar. It readily adheres to any of the above named, effectually excluding water, and will prevent or stop leaks in shingles, slate, tin and iron roofs. The best counter-flashing material for roofers and tanners to use. We furnish Patching Fibre in rolls, 12 feet long by 1, 2 and 3 inches wide, ready to spread with cement and apply.

No Iron or Steel Roof will leak if treated with our Materials and the directions are fully carried out

Fig. 173



Shows Sagendorph process applied to new work, especially adapted to finishing iron or steel roofs. It applies equally as well as to tin, zinc, copper, slate or shingles (tin or wood).

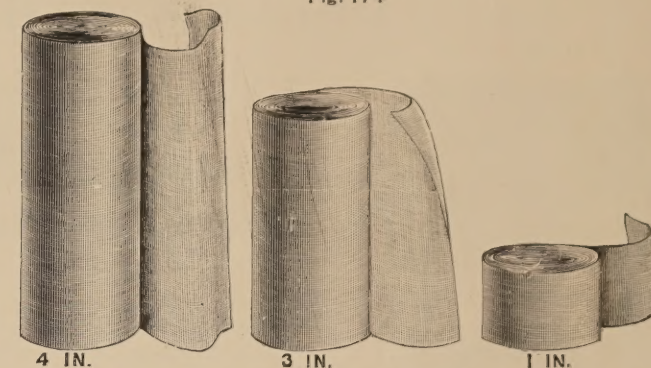
A—Location of chimney. B and C—Stone flagging covering top of parapet walls. D—Roofing laid ready to flash and paint. E and F—Fibre flashing spread with Obelisk Iron Cement, and partly applied to the iron turn up and brick wall. G—Mode of securing cut corners before counter-flashing. H—Counter-flashing applied upon corner finished, lower corners ready. I—Corner before treating, flashing turned 3 inches and nailed, then apply corner fibre as in G, after applying the counter-flashing as in H and F. J—Iron flange turned 3 inches. K—Roofing sheets hooked into box gutter lining. L—Box gutter lined with iron. M—Manner of finishing an imperfect cross joint. Before applying the fibre, prime the place to be treated with Obelisk Paint, 2 inches on the brick or wood, and 2 inches on the iron; then spread the fibre smoothly with a trowel (spread it thin), as in Fig. 83. For corners, prepare the fibre as in Fig. 74, after spreading the cement on the fibre, apply then as in Fig. 75; pat them smooth, allowing no air to remain between the patch and what it is applied to. Work out the edges into the cement; then paint over it lightly, filling the outside fibre. Always apply the corner pieces first, then the last flashing as in letter F, Fig. 75. For nails and small breaks and rust holes, tear fibre patch long or square enough to cover the breaks one inch each way.

During the past three years, in this city and State, we have treated over 500,000 squares of iron and tin work, at \$1.00 to \$2.00 per square, either direct from our firm or through our local agents. And to-day there is not a single patron who will say that it is not as represented; the only complaint which we ever hear is, *it costs so much*. But people have been so imposed upon and cheated that it has become almost a seated rule to pay as little as possible for this kind of work.

Good material in the hands of an honest and experienced mechanic costs money, for every dollar expended in honest work and first-class material the consumer gets in return almost the dollar in the start; and, in the end, the investment has made \$3.00 for every \$1.00 invested.

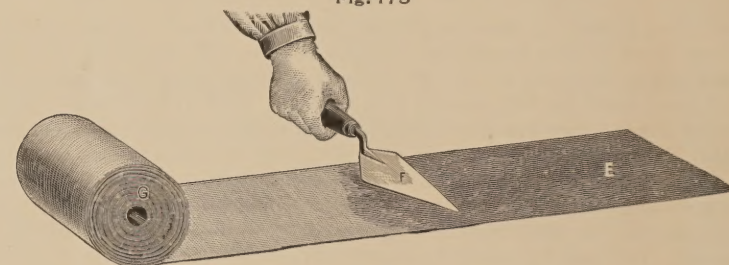
This process and material will do the work better, quicker and more effectually than acid and solder—no danger of deterioration or loosening

Fig. 174



Shows Fibre patching rolls, made from unbleached muslin, torn in strips, 4, 3 and 1 inches wide, 12 feet long, and put into small rolls, ready for use. 3-inch is used in counter-flashing around chimneys, skylight frames at base, and parapet walls, or adjoining buildings. 2-inch is used for repairing cross joint seams and standing ribs. 1-inch for small breaks, skylight frames between the glass, etc.

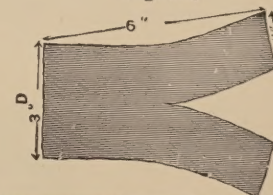
Fig. 175



Shows Fibre roll in process of spreading with Obelisk Iron Cement before applying.

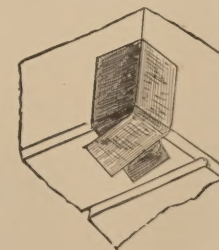
E—Cement spread on fibre before using. F—Trowel used in spreading and smoothing the cement. G—Roll Fibre material.

Fig. 176



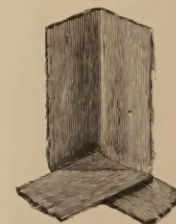
Shows corner patch or under-flashing, used on all corners on roof, is made from a 3-inch wide Fibre, 6 inches long, and at one end it is torn or slit 2 inches deep. Ravel out all the raw edges before spreading on the Cement.

Fig. 177



D—Shows shape of corner patch in letter G and upper corner of Fig. 173, also shows how to apply this corner patch on an inverted corner. Letter G is open at the base of fibre as shown. When applied to inverted corner, the base ends are lapped over one another, as shown in upper corner of roof, Figs. 173 and 119. Always pat them smooth and repaint them as soon as applied. After the roofing is all treated, then proceed to paint, moving the brush lightly over the fibre flashing and patching. If convenient, and the job is large, it is best to do all the flashing and patching, and let it stand one or two days before painting the entire roof.

Fig. 178



Shows a concave corner patch or flashing for cut corners.

GUTTERS AND CONDUCTOR PIPE

CORRUGATED EXPANDING CONDUCTOR PIPE

Round and Square



Round Expanding Conductor Smooth or Corrugated PRICE LIST

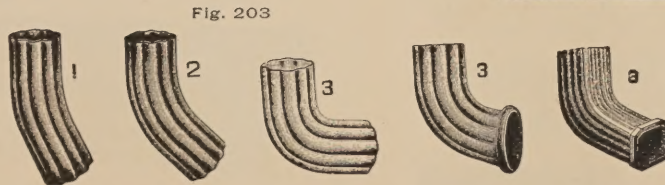
	No. 28 Galvanized. Per foot.	14-oz. Copper. Per foot.
2 inch	\$0 13	\$0 40
3 "	15	50
4 "	20	65
5 "	25	85
6 "	30	1 00



Square Corrugated Expanding Conductor Pipe

PRICE LIST

	No. 28 Galvanized. Per foot.	14-oz. Copper. Per foot.
1 3/4 x 2 1/4 inch (2 inch) . . .	\$0 14	\$0 40
2 1/4 x 3 1/4 " (3 ") . . .	16	50
2 3/4 x 4 1/4 " (4 ") . . .	21	65
3 1/4 x 5 " (5 ") . . .	26	85



Corrugated Square or Round Expanding Elbows and Shoes

	2-inch.	3-inch.	EACH. 4-inch.	5-inch.	6-inch.
Elbows	30c.	36c.	48c.	60c.	72c.
Shoes	40c.	48c.	60c.	72c.	84c.

Order Elbows and Shoes by size and number.

"American" Lap Joint Eaves Trough

For Slip Joint, add 1c. lineal foot to net.

A PERFECT AND UNIFORM EAVES TROUGH

Made in ten (10) feet lengths of Galvanized Steel.

Made in ten (10) feet lengths of One (IX) Cross Old-Fashioned Terne.

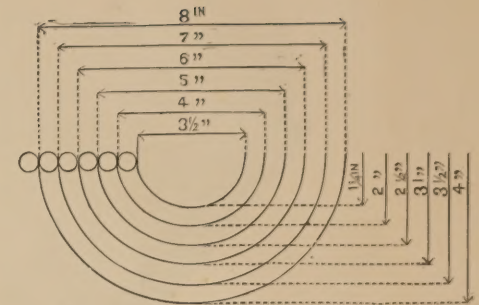
Made in ten (10) feet lengths IC Terne.

PRICE LIST.

GALVANIZED STEEL.

No. 28 Gauge. 10 feet long. Lap Joint.

3 inch Galvanized (6 inch Girth,) per foot	13 cents.
3 1/2 " " (7 " ") "	14 "
4 " " (8 " ") "	16 "
4 1/2 " " (9 " ") "	18 "
5 " " (10 " ") "	19 "
6 " " (12 " ") "	23 "
7 " " (14 " ") "	27 "
8 " " (16 " ") "	30 "



NOTE.—Size taken inside of Bend.

Packed in cases of 250 feet.

For Galvanized Trough heavier than No. 28 gauge, add the following prices per foot to above List Prices, and same for Conductor.

No. 27 Gauge	\$0 01
" 26 "	02
" 24 "	06

Crates for Eaves Trough, 25 cts. each.

Fig. 199



Lap Joint.

Fig. 200



Slip Joint.

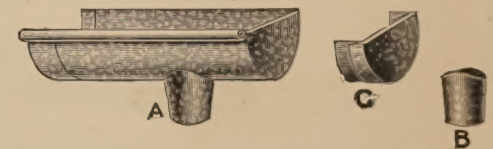
State whether right or left is wanted; otherwise half right and half left will be shipped.

Fig. 201



Slip Joint Gutter End Sections, Slip Ends and Tubes

Fig. 2C2



A—Shows a section of Eave Trough, with Tube and End soldered in.
12-inch section (A complete) can be furnished either Lap or Slip Joint
B—Shows a Tube or Outlet.
C—Shows Slip Joint End Piece. Can be used either right or left.

PRICE LIST

SIZE	Complete. Either Lap or Slip Joint.	B	C
2 inch, per dozen		\$0 60	
2 1/2 " "		65	
3 " "	\$2 55	75	\$0 95
3 1/2 " "	2 80	80	95
4 " "	3 10	85	1 10
5 " "	3 45	95	1 20
6 " "	4 15	1 20	1 45
7 " "	4 70		1 70
8 " "	5 25		2 10

GUTTERS AND HANGERS

Fig. 179

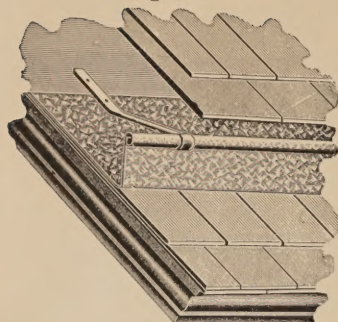


Fig. 180



PRICE LIST

Galvanized Steel.

14-inch Girth, 5/8 inch Bead, per foot	35 cents.
20 " " " " " "	50 "
24 " " " " " "	60 "

Fig. 181

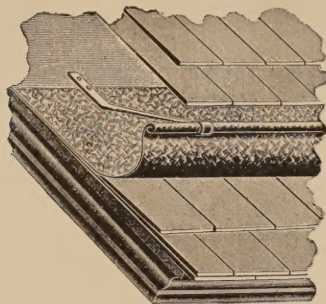
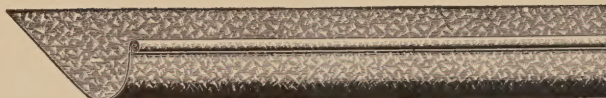


Fig. 182



PRICE LIST

Galvanized Steel.

15-inch Girth, 5/8 inch Bead, per foot	37 cents.
20 " " " " " "	60 "
24 " " " " " "	60 "

Hangers for above gutters, each, net, 3 cents

O. G. HANGING CUTTERING, GALVANIZED STEEL

QUOTATIONS INCLUDE STRAPS AND BRACES

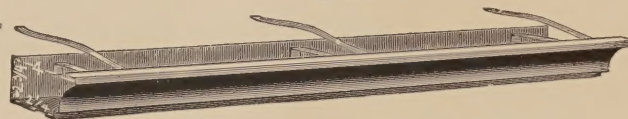
28 TO 22 GAUGE, GALVANIZED STEEL

These are made in 8 and 10 feet lengths without joints, and are well braced and strapped.

Fig 184



4-inch face.



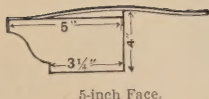
Our O. G. Hanging Gutter or Eaves Trough, No. 1.

For Porch or Small Roofs, 10 feet or less Rafters.

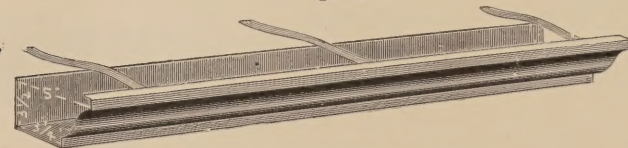
26 gauge, per lineal foot (straps and braces)	13 cents.
24 " " " " " "	15 "

Ends and tubes charged as one foot; mitres, convex or concave, as two feet.

Fig. 185



5-inch Face.



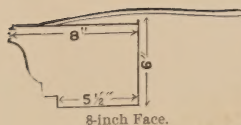
Our O. G. Hanging Gutters or Eaves Trough, No. 2.

For medium-sized Building, Rafters not over 17 feet.

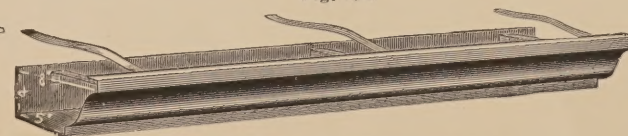
26 gauge, per lineal foot (straps and braces)	15 cents.
24 " " " " " "	17 "

Ends and tubes charged as one foot; mitres, convex or concave, as two feet.

Fig. 186



8-inch Face.

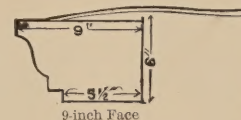


Our O. G. Hanging Gutter or Eaves Trough, No. 3.

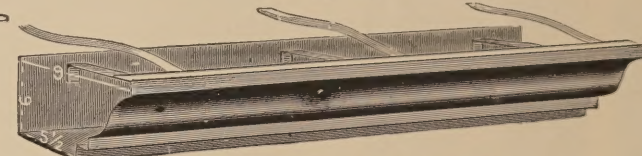
For Building 50 feet long with 25 feet Rafters.

26 gauge, per lineal foot (straps and braces)	20 cents.
24 " " " " " "	22 "

Ends and tubes charged as one foot; mitres as two feet.



9-inch Face



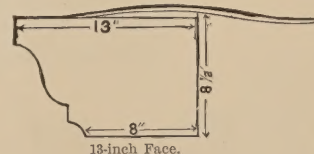
Our O. G. Hanging Gutter or Eaves Trough, No. 4.

For Building 75 feet long with 25 feet Rafters.

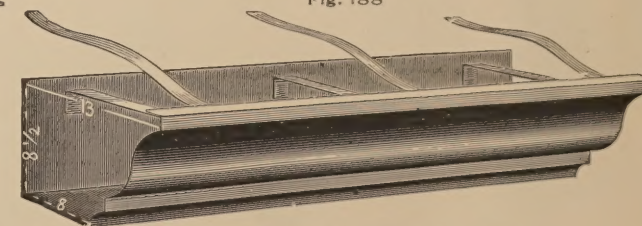
26 gauge, per lineal foot (straps and braces)	24 cents
24 " " " " " "	26 "

Ends and tubes charged as one foot; mitres as two feet.

Fig. 188



13-inch Face.



Our O. G. Hanging Gutter or Eaves Trough, No. 5.

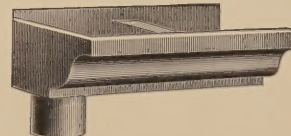
For Building with 80 feet or more of water run.

26 gauge, per lineal foot (straps and braces)	32 cents.
24 " " " " " "	34 "

Ends and tubes charged as one foot; mitres as two feet.

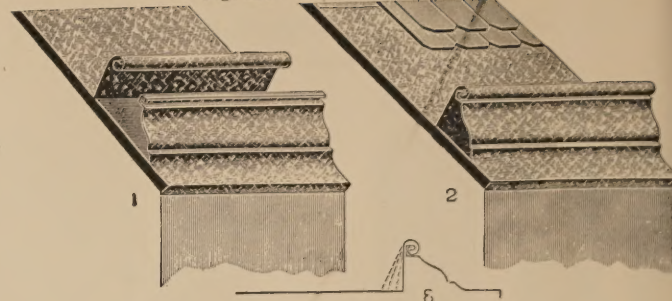
Crating Charged at Cost

Fig. 189



Shows End and Tube of O. G. Gutter.

Fig. 183



PRICE LIST

Gutter Apron.

5 1/2-inch

Depth.

1 1/2-inch

2 " "

3 " "

3 1/2 " "

4 " "

5 " "

6 " "

8 " "

11 " "

12 " "

No. 26 Galvanized.

Per lineal foot, 30 cents

" " " " " "

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Price List of Shanks

Put up 50 in a package. Per 100, net.

Nos. 7-9,	\$3 30
Nos. 8-10-13-14,	3 55
Nos. 6-11-12-15-20-25,	5 75
Nos. 16-17-18-24,	6 65
Nos. 19, with bolt for hinge,	8 30
Extension Shank, with extra bolt,	3 30

Price List of Circles

GEM	3-3¼-3½-3¾-4-4¼ inches,	\$3 30
PENN	4½-5-5¼-5½ inches,	5 00
STANDARD	5¾-6-6¼-6½ inches,	6 65
OR	7-7¼-7½-8 inches,	8 30
GLOBE	9-10 inches,	9 95

NOTE—In measuring troughs for the Gem and Penn Circle, always spread trough to a true compass inside of bead.

Be careful in ordering fasteners for Long Eave Gutters not measured between the beads; for such, order one size smaller.

GUTTER HANGER FOR METAL, SLATE OR SHINGLE ROOFS

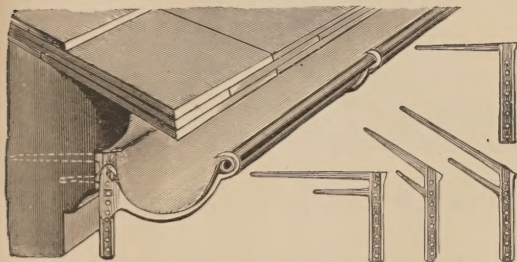


Fig. 192

No. 14.

No. 7.

No. 8. No. 9. No. 13.

The late improved circles have four bolt-holes to drop every $\frac{1}{8}$ or $\frac{1}{4}$ inch, and extend clean around over the outside bead, doing away with the inside stop-hook and strap, or close measurement, so that troughs can vary in width or extend upon the roof. The trough is fastened down inside, instead of outside, with doubled wire hooked in, and both points bend down over the trough complete.

For gutters close up the shingles, slip a hooked wire up from below and fasten the shank.

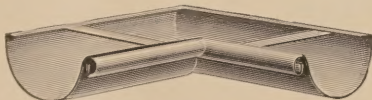


Fig. 196

Shows Concave Mitre of Half Round Gutter.



Fig. 197

Shows Slip Joint, Half Round Gutter, 1 cent extra per lineal foot to the net.
Crating charged at cost

CONSOLIDATED LIST OF SHANKS AND CIRCLES

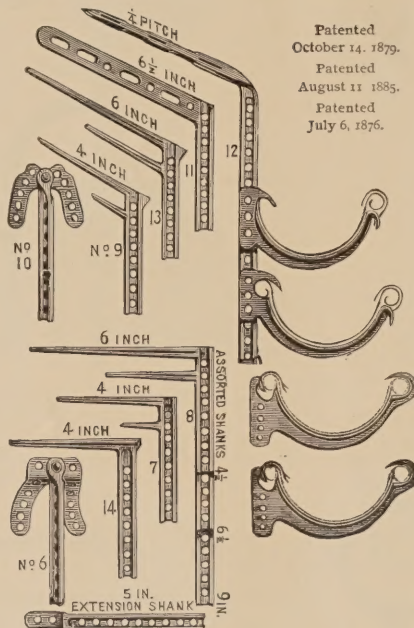


Fig. 193

Patented
October 14. 1879.
Patented
August 11 1885.
Patented
July 6, 1876.

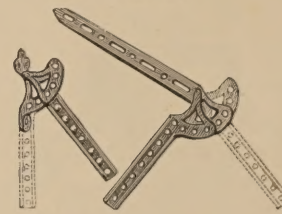


Fig. 194

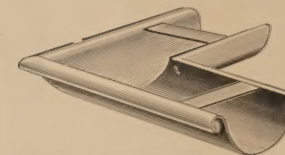
No. 20.

No. 18.



No. 19.

No. 19 Shank is used either on top or under the shingle. Just the thing wanted for short projections.



Flg. 195

Shows Convex Mitre of Half Round Gutter.

MITRES

These Mitres are made complete, ready for use, both Inside and Outside Bead, either Slip or Lap Joint

PRICE LIST

No. 28 Galvanized Steel

LAP JOINT						
3 inch, per dozen, net	.	.	.	.	.	\$2 25
3½ " "	"	"	"	"	"	2 50
4 " "	"	"	"	"	"	2 75
5 " "	"	"	"	"	"	3 00
6 " "	"	"	"	"	"	3 50
7 " "	"	"	"	"	"	4 25
8 " "	"	"	"	"	"	5 00

SLIP JOINT

3	inch, per dozen, net	\$2	75
3 1/2	do	3	00
4	do	3	25
5	do	3	50
6	do	4	00
7	do	4	75
8	do	5	50

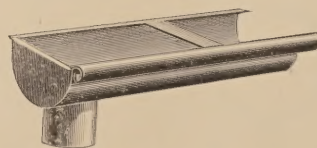
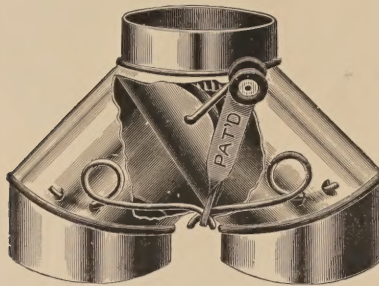


Fig. 198

Shows End and Tube. Half Round Gutter.

The Perfection Rain Water Cut-Off

Fig. 325



PRICE LIST

Per doz.		Per doz.	
2-inch, Tin	\$5.00	2-inch Galvanized Iron	\$7.00
3 " "	6.00	3 " " "	8.00
4 " "	9.00	4 " " "	11.00
5 " "	14.00	5 " " "	20.00
6 " "	20.00	6 " " "	24.00

Packed in Crates of One Dozen Each

Fig. 326



For Wood.

Corrugated Hinged Hooks

Patented

PRICE PER 100, TINNED

	2-inch	2-inch	4-inch	5-inch	6-inch
For Wood . . .	\$2.50	\$3.50	\$4.50	\$5.50	
For Brick . . .	3.50	4.50	5.50	6.50	\$7.50

Fig. 327



For Brick.

Fig. 328



For Wood.

Round Hinged Hooks

PRICE PER 100, TINNED

	2-inch	3-inch	4-inch	5-inch	6-inch
For Wood . . .	\$2.50	\$3.50	\$4.50	\$5.50	
For Brick . . .	3.50	4.50	5.50	6.50	\$7.50

Fig. 329



For Brick.

Never-Slip Conductor Hooks

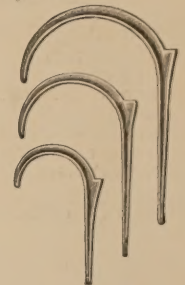
Patented November 12, 1895

Fig. 330



For Brick.

Fig. 331



For Wood.

Malleable Iron, Tinned

Four Reasons Why NEVER-SLIP Hooks are the Best

They can be used for either CORRUGATED or PLAIN ROUND PIPE.

They hold the pipe firmly.

The hook hugs the pipe, doing no injury.

The circle hook is arranged to bind the corrugations of corrugated pipe.

PRICE LIST.

	2-inch.	2½-inch.	3-inch.	3¼-inch.	4-inch.	5-inch.	6-inch.	7-inch.	8-inch.
For Wood, per 100,	\$1.00	\$1.50	\$2.00	\$2.50	\$3.00	\$4.00	\$5.00		
For Brick " "	1.75	2.00	2.75	3.25	4.25	6.00	7.50	\$9.00	\$10.50

When ordering hooks for **2-inch round corrugated** conductor, always specify **2½-inch**, as that size pipe measures **2¾ inches** in diameter.

"American" Ventilator

Fig. 323

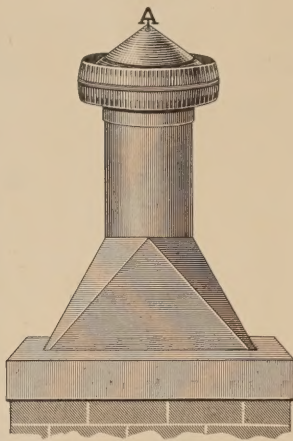


The “American” Ventilator

PRICE LIST

WITH CAPACITY IN SQUARE INCHES				
Size.	Area.			Each.
2	inch	contains 4	square inches	\$1 00
4	"	"	"	1 75
5	"	"	"	2 50
6	"	"	"	3 40
7	"	"	"	4 00
8	"	"	"	4 65
10	"	"	"	5 75
12	"	"	"	6 75
14	"	"	"	13 00
16	"	"	"	20 00
18	"	"	"	27 00
20	"	"	"	33 00
22	"	"	"	36 00
24	"	"	"	40 00
26	"	"	"	50 00
28	"	"	"	56 00
30	"	"	"	65 00
32	"	"	"	80 00
34	"	"	"	100 00
36	"	"	"	120 00
40	"	"	"	180 00
44	"	"	"	240 00
48	"	"	"	300 00
54	"	"	"	360 00
60	"	"	"	

Fig. 324



THE AMERICAN "VENTILATOR"

AS A

CHIMNEY CAP OR COWL

When used as a Cowl, the capacity of Ventilator should be a little greater than the Flue opening. Thus, for a 4 x 12 opening an 8-inch Ventilator should be used.

As an agent for the prevention of downward currents in chimneys, with their attendant evils, and the increase of drafts in sluggish flues, the "American" excels all others. In building the base, care should be taken to guard against dead-air spaces. It should be made to fit securely over the chimney, and then taper gradually to dimensions of pipe to which the Cap is attached, thus allowing a free exit. If a chimney has two or more flues, a separate Cap should be used, each independent of the other; but two or three flues may be covered by one Cap, having separate pipes and caps for each flue.

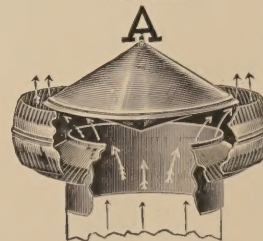
for smoke and gases. Where a chimney has two or more flues, a separate Cap should be used, each independent of the other; but two or three flues may be covered with one base, having separate pipes and caps for each flue.

Summer Cottages will be greatly benefited by using "American" Ventilators, not only during the hot summer months, but, when closed during the winter, will keep the entire interior from becoming mouldy or musty, and you will find your rooms dry and sweet when opened in the spring.

AMERICAN "VENTILATOR"

SECTIONAL VIEW OF FIG. 323

Fig. 323



Absolutely Storm-Proof

With no Back Draft

An Abundant Exit for Foul Air

The "American" Ventilator is guaranteed to exhaust more cubic feet of air per hour than a large majority of the Storm-Proof Ventilators now on the market.

It is SIMPLE,
HANDSOME,
DURABLE,
EFFECTIVE

A REVELATION—UTILITY IDEALIZED

ELBOWS AND SHOES

... Price List ...

Ornamental Stamped Elbows

Fig. 207



2 inch	each \$1.50
3-inch	each 1.80
4-inch	each 2.30
5-inch	each 3.00
6-inch	each 3.50

Fig. 208



The ornamental shell covers
an Octagon Elbow.

Ornamental Elbows and Receivers used in connection with Polygon Pipe will add to the appearance of a building, just as good clothes improve the appearance of the wearer.

Either Octagon or Fancy Stamped Elbows
can be used with Polygon Pipe.

Special discounts on either

Flat Crimp Octagon Elbows

PATENTED

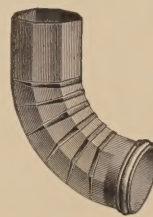
Fig. 209



ELBOW

ELBOWS		SHOES	
2-inch	each .25		each .30
3-inch	each .30		each .36
4-inch	each .40		each .48
5-inch	each .50		each .60
6-inch	each .60		each .72

Fig. 210



SHOE

Made in Four Angles

The ends of this elbow are scalloped, so as to fit our Polygon Pipe more perfectly.

See that

Twist



WEITZEL'S



ATENT

OLYGON
PIPE

Best

Strongest

Handsomest

Conductor Pipe

Ever Produced

POLYGON CONDUCTOR PIPE

PATENTED AUGUST 26, 1894, AND OCTOBER 26, 1897.

Polygon Pipe has been manufactured and sold on the local market for the past two years. No special effort has been made by the patentee during that time to introduce it outside of this locality, as he did not have proper facilities for manufacturing it in large quantities.

Having lately purchased the patent, we shall manufacture it on a large scale, and will place it within easy reach of every one who desires to have the newest and best pipe obtainable.

Philadelphia architects have endorsed and specified it on all the better class of buildings they have designed.

All architects, contractors, and property holders who have seen it acknowledge its superiority.

Only the best quality of material will be used in its manufacture.

The peculiar spiral construction obtained by twisting, together with its polygon scalloped form, produces the strongest and best, and, therefore, the cheapest pipe now known.

Allowance is made for necessary expansion and resistance, and a handsome artistic effect is secured, which makes this pipe greatly superior to any other on the market.

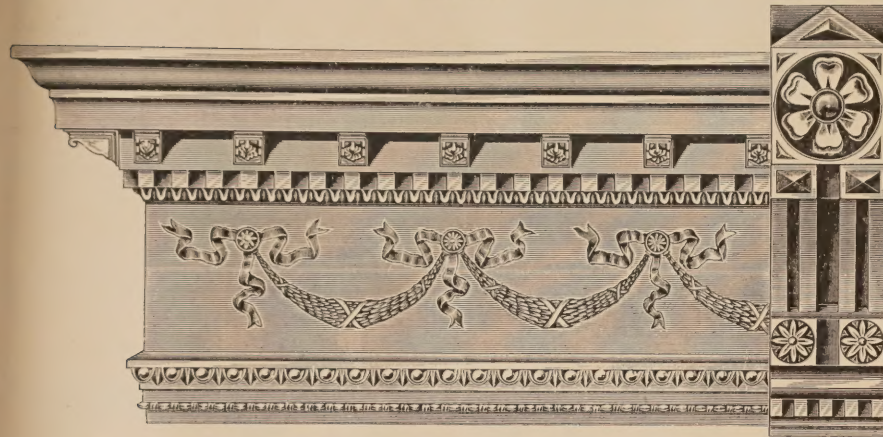
Ice forming in it will not burst joints and seams, as in other conductors, for it will descend gradually, without injury to the pipe.

During heavy rains, water will discharge more freely, as the pipe will not choke.

It sells on sight.

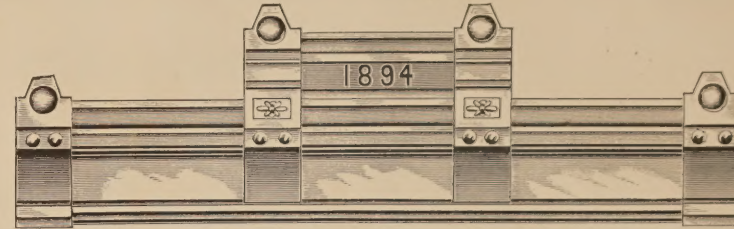
THE PENN METAL CEILING AND ROOFING CO., LIMITED, PHILADELPHIA, PA.

Fig. 225



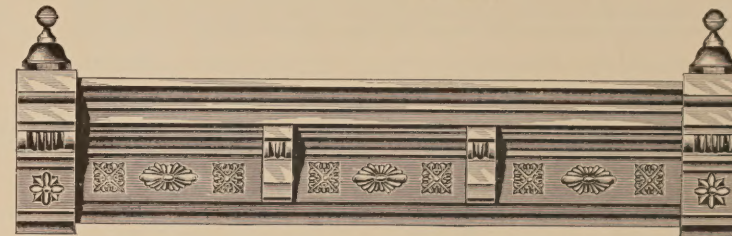
Height, 44 inches. Projection, 20 inches. Price, per lineal foot, \$3.50. End Trusses, \$5.25 each. Mitres, \$3.50 each.

Fig. 229



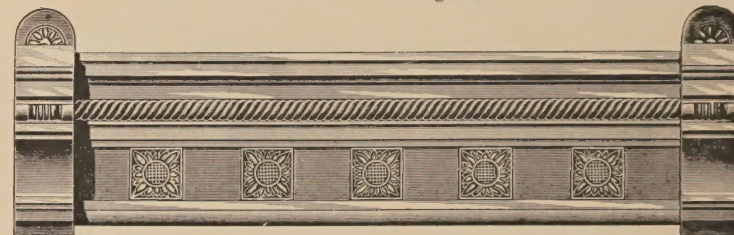
Height, 26 inches. Projection, 12 inches. Price, per lineal foot, \$1.25. End Trusses, \$3.25. Letters, 65 cts. each. Pediment, \$15.00.

Fig. 230



Height, 30 inches. Projection, 18 inches. Price, per lineal foot, \$1.50. End Trusses, \$4.50. Urns, \$1.75 each.

Fig. 231



Height, 36 inches. Projection, 15 inches. Price, per lineal foot, \$1.45. End Trusses, \$4.00 each.

Fig. 228



Shows Corner Block Ornamented, 4 sizes. Used with Cornice, Fig. 226.

18-in. height, 8-in. face, each,	...	\$4.75
30 " 10 " "	...	5.95
34 " 12 " "	...	6.25

Fig. 232



Double window cap (arched), \$9.50 each. Height from top of egg and dart to bottom of block, 13 inches. Length, 7 feet by 4 inches from outside to outside.

Fig. 227



Special prices on application.

Fig. 226



Shows our new style of Reeded Face Cornice with Zinc Ornaments, 3 sizes made.

No. 1, 26 Gauge,	{ Height, 15 in., }	per lineal ft.,	...	\$0.60
" 1, 24 "	{ Projection, 8 " }	"	...	.90
" 2, 26 "	{ Height, 24 " }	"	...	1.05
" 2, 24 "	{ Projection, 12 " }	"	...	1.40
" 3, 26 "	{ Height, 30 " }	"	...	1.70
" 3, 24 "	{ Projection, 16 " }	"	...	2.15

Corner blocks of any style we manufacture quoted special.

GALVANIZED CORNICES

ALSO MADE OF COPPER

We submit the following designs to give some idea of the character of work turned out by us in this line. Any of the designs shown are subject to modification, and can be either enlarged or reduced to suit the requirements of the customers at a small expense.

We will quote prices on any special design, if accurate drawings and specifications are sent us.

Our facilities in this branch of our business have been greatly increased, and we can insure our customers good workmanship and promptness in filling orders.

Each Cornice must be made up after measurements are received, which requires time, and it is important that orders be placed early, so that they may be delivered by the time the goods are needed. In ordering Cornice, *always* give extreme length, including End Trusses. We will positively not be responsible for any errors made in measuring, nor will *any change* be made after work is started, except at the expense of *parties* ordering.

Trusses are all made with 12-inch face, unless otherwise ordered.

Cornices are all special, and the importance of having correct measurements before the work is started is plain to everyone.

WE QUOTE ON COPPER CORNICES ONLY WHEN SPECIFICATIONS ARE SENT US
CRATING CHARGED FOR AT COST

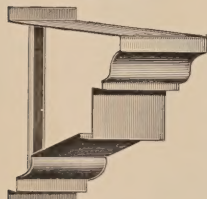
LINTEL, OR BELT CORNICES

Fig. 235



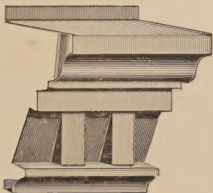
Shows Medium Cornice.
Gauge, { Height, 10 in., } per lineal ft., 37c.
 { Projection, 8 " } " 41c.

Fig. 236



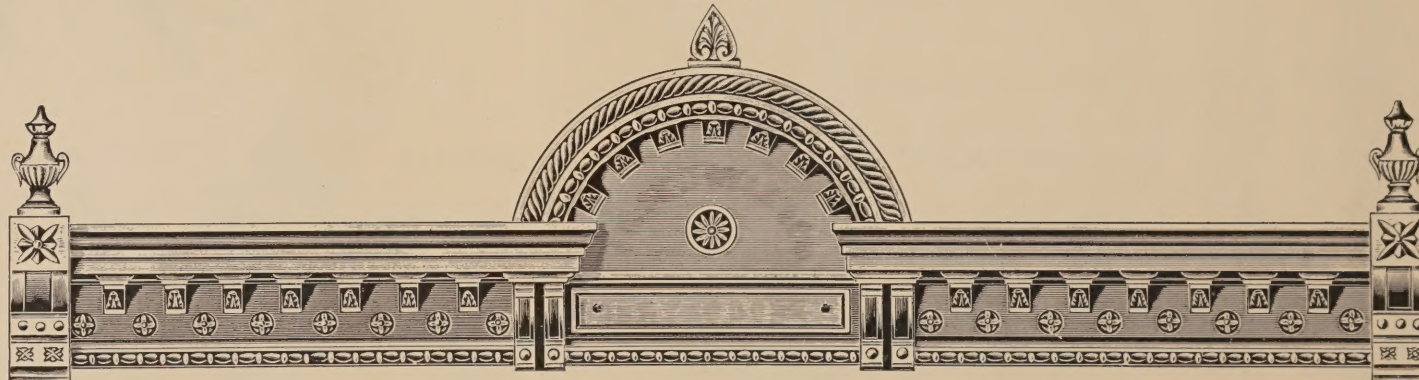
Shows No. 2, Medium Cornice.
26 Gauge, { Height, 12 in., } per lineal ft., 52 cts.
24 " { Projection, 9 " } " 56 cts.
Mitres of any Cornice, we charge as two lineal feet.

Fig. 237



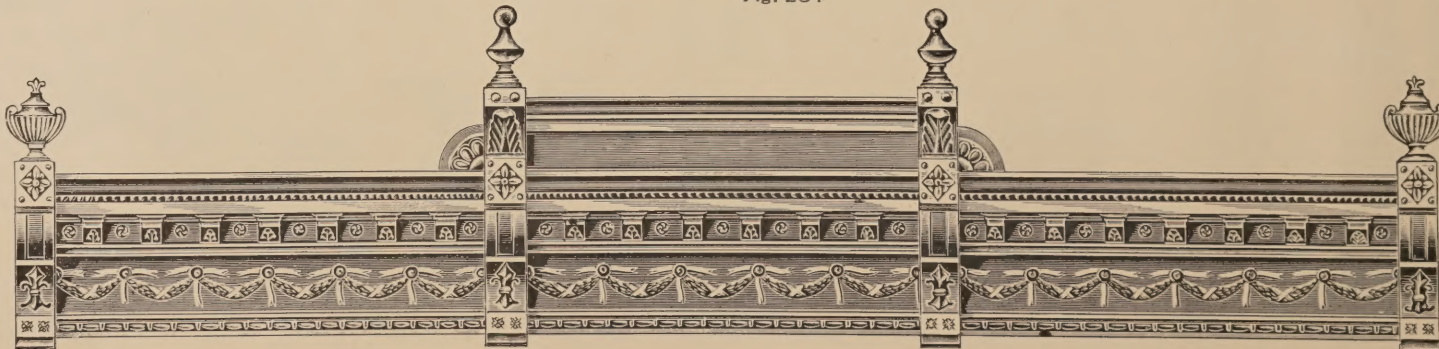
Shows Medium Ornamented Cornice.
26 Gauge, { Height, 15 in., } per lineal ft., 67 cts.
24 " { Projection, 10 " } " 72 cts.

Fig. 233



Height, 40 inches. Projection, 24 inches. Price, per lineal foot, \$3.25. End Trusses, \$6.00 each. Urns, \$8.00 each. Pediments, 10 inches wide, \$27.00 each. Letters, when wanted, 65 cts. each.

Fig. 234



Height, 48 inches. Projection, 26 inches. Price, per lineal foot, \$4.00. End Trusses, \$6.25 each. Urns, \$6.00 each. Pediments, 7 inches wide, \$12.00 each. Letters, when wanted, 65 cts. each.

GALVANIZED WINDOW AND DOOR CAPS

All List Prices for Window and Door Caps are based on openings 32 to 42 inches in width between jambs of openings. In ordering, always state the distance between jambs and how much the frames are recessed from face of wall.

ALL CORBELS ARE MADE 4 INCHES WIDE, UNLESS OTHERWISE SPECIFIED

CRATING CHARGED FOR AT COST

Fig. 244



Price, \$2.50 each.

Fig. 245



Price, \$3.00 each.

Fig. 246



Price, \$2.50 each.

Fig. 247



Price, \$3.00 each.

Fig. 248



Price, \$2.75 each.

Fig. 249



Price, \$2.50 each.

Fig. 250



Price, \$2.75 each.

Fig. 251



Price, \$2.75 each.

Fig. 252



Price, \$3.25 each.

Fig. 253



Price, \$3.50 each.

Fig. 254



Price, \$5.75 each.

Fig. 255



Price, \$4.25 each.

Fig. 256



Price, \$3.75 each.

Fig. 257



Price, \$4.75 each.

Fig. 258



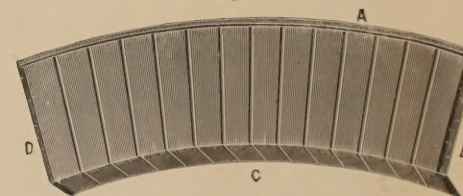
Price, \$2.00 each.

Fig. 259



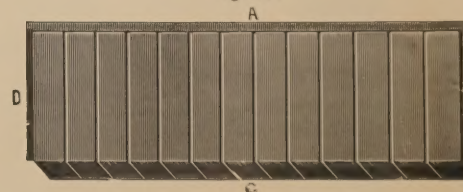
Price, \$2.40 each.

Fig. 260



Price, \$4.75 each.

Fig. 261



Price, \$3.75 each.

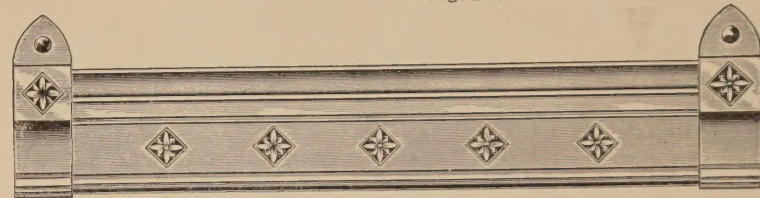
CORNICES—Continued

Fig. 238



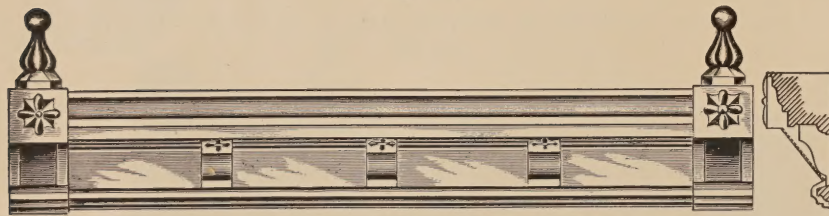
Height, 24 inches. Projection, 12 inches. Price per lineal foot, 80 cts. End Trusses, \$4.50 each. Urns, \$2.15 each.

Fig. 241



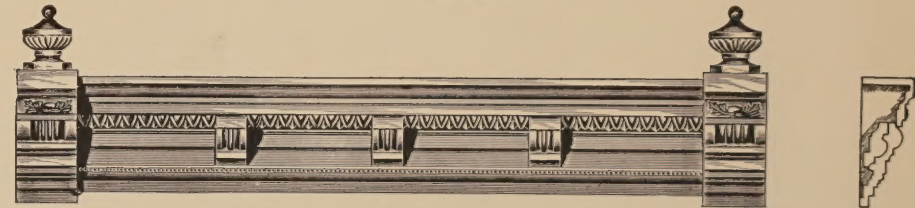
Height, 26 inches. Projection, 12 inches. Price per lineal foot, 90 cts. End Trusses, \$5.00 each. Urns, \$2.15 each.

Fig. 239



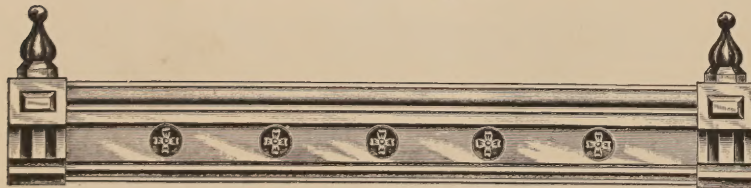
Height, 24 inches. Projection, 12 inches. Price per lineal foot, \$1.00. End Trusses, \$4.75 each. Urns, \$2.15 each.

Fig. 242



Height, 28 inches. Projection, 15 inches. Price per lineal foot, \$1.50. End Trusses, \$4.75 each. Urns, \$2.25 each.

Fig. 240



Height, 20 inches. Projection, 10 inches. Price per lineal foot, 80 cts. End Trusses, \$4.75 each. Urns, \$2.15 each.

Fig. 243



Height, 30 inches. Projection, 15 inches. Price per lineal foot, \$1.75. End Trusses, \$5.75. Urns, \$2.25 each.

FINIALS, SADDLES AND FANCY RIDGING

Manufactured from Zinc and Galvanized Materials

Fig. 272



Height, 43 inches.
Neck, 6 inches.

Fig. 273



10 x 14 inches. Cresting Block.

Fig. 275



Height, 24 inches.

Fig. 276



Height, 12 inches.

Fig. 277



Height, 12 inches.

Fig. 278



Height, 16 inches.

Fig. 274



10 x 10 inches.

Fig. 279



Rope Mould, Ridging. Girth, 8½ inches. Rope roll, 2¼ inches diameter.

Fig. 280



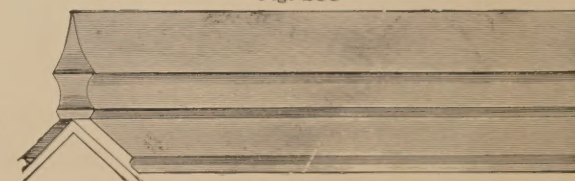
Japanese Hip. Each section covers 12 inches.

Fig. 282



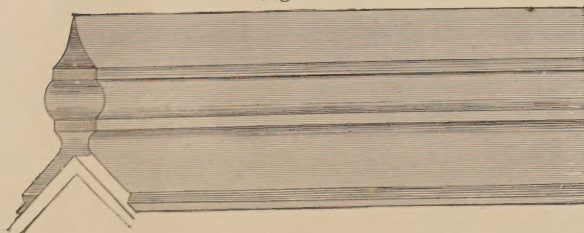
Height above Ridge, 6 inches. Price, per lineal foot, 30 cts.

Fig. 283



Height above Ridge, 7 inches. Price, per lineal foot, 35 cts.

Fig. 281



Height above Ridge, 8½ inches. Price, per lineal foot, 40 cts.

Finials used as shown in Figs. 275, 276, 277 and 278

Ends are charged as one foot.

Extra for Finials, 12 inches high, each, \$3.00.

Ends are charged as one foot.

Extra for Finials, 24 inches high, each, \$3.50.

Ends are charged as one foot.

Extra for Finials, 16 inches high, each, \$3.25.

FINIALS, URNS, SADDLES and CORNER FINISH

MANUFACTURED FROM ZINC AND GALVANIZED MATERIAL

Fig. 262



Height, 6 feet.
Base, 6½ inches.
Net, \$7.50.

Fig. 263



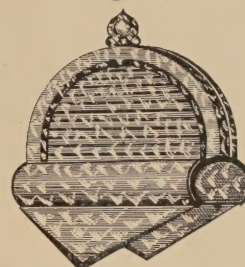
Height, 19½ inches.
Base, 8½ inches.
\$3.75.

Fig. 265



Height, 20 inches.
Width, 13 inches.
Base, 8½ inches.
\$5.50.

Fig. 267



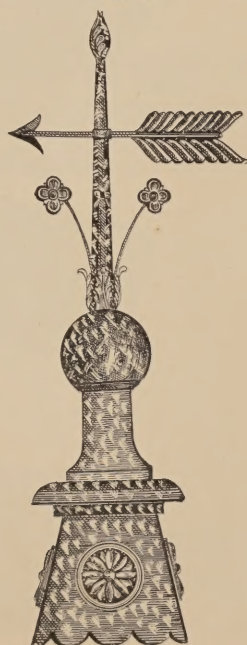
Height, 10 inches.
Width, 8 inches.
Roll, 2 inches.
35 cts.

Fig. 269



Height, 8 inches.
Width, 10 inches.
Roll, 2 and 3 inches.
35 cts.

Fig. 264



Height, 3 feet.
Base, 10 inches.
Net, \$15.00.

Fig. 266



Height, 3 feet 3 inches.
Base, 8½ inches.
Round. Net, \$10.00.

Fig. 268



Height, 3 feet 3 inches.
Base, 6½ inches.
Round. Net, \$5.00.

Fig. 270



Length, 6 inches.
12-inch face rock stone.

Fig. 271



Length, 6 feet.
12-inch face rock stone.

SAGENDORPH'S PATENT METAL ROCK-FACED PRODUCTS

ROCK-FACED SHEETS, PILASTERS, BELT LINE AND CORNER FINISH

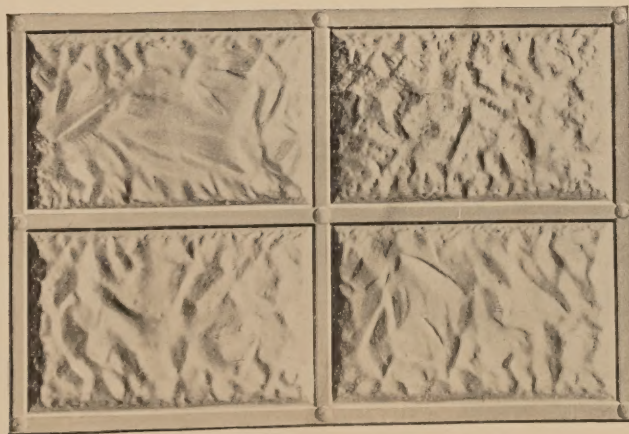
Fig. 290



Size of Sheet, 28 x 48 inches, or $9\frac{1}{3}$ square feet to the sheet; $10\frac{3}{4}$ sheets to 100 square feet.
Body Plates for Siding.

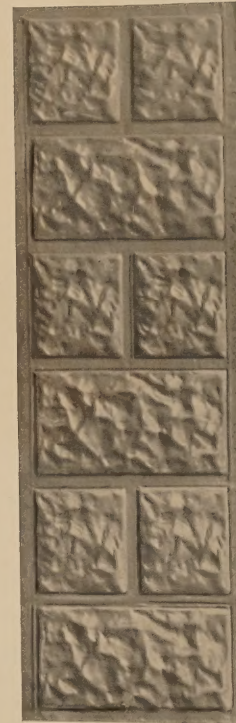
Size of Stock Sheet, 28 x 48 inches. Size of Stone, 24 x 7 inches.

Fig. 291



Size of Sheet, 18 x 28 inches, or $3\frac{1}{2}$ square feet to the sheet; $28\frac{3}{4}$ sheets to the 100 square feet.
Corner Plates or Belt Line. See Fig. 307, page 61.

Fig. 292



Width, 12 inches; in length,
1 to 10 feet.

Pilaster or Corner Finish.

Blocks, 13 x 7 inches. Half

Blocks, $6\frac{1}{2}$ x 7 inches.

Fig. 293



Rock-Faced Stone. Size of Sheet, 28 x 96 inches.
Stone Blocks, 7 x 12 inches.

ROCK-FACED BRICK

Fig. 294



Rock-Faced Brick. Size of Sheets, 26 x 96 inches. Bricks, 2 x 8 inches.

FANCY RIDGING, FINIALS and SADDLES

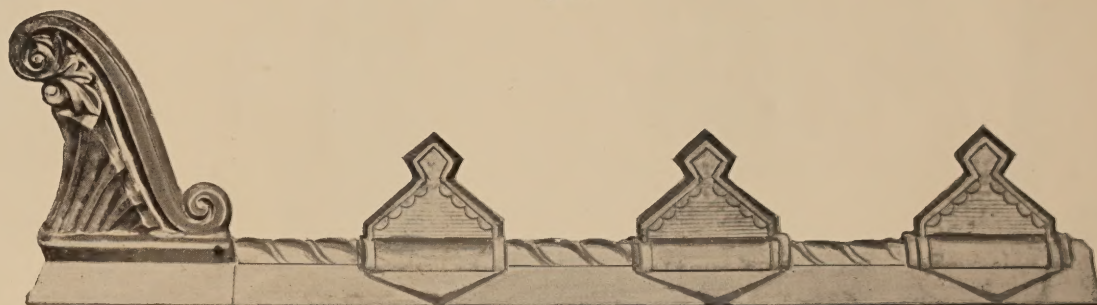
MANUFACTURED FROM ZINC AND GALVANIZED MATERIALS

Fig. 284



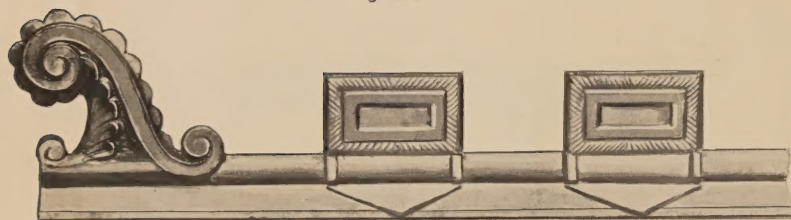
Finials, 12, 15 and 24 inches, with Apron. Cresting
Ornaments, 11 inches high.
Diameter of Ridge Row, 2 inches.

Fig. 285



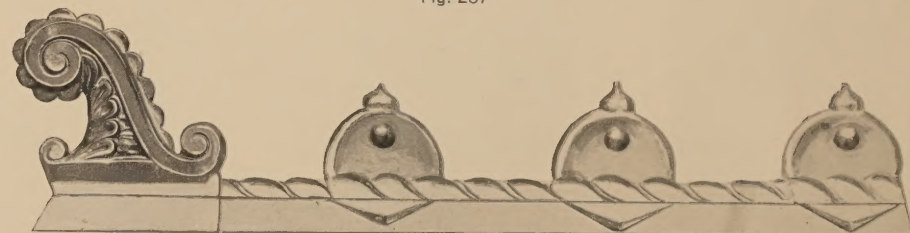
Height of Cresting Blocks, 9 inches from top of Ridge.

Fig. 286



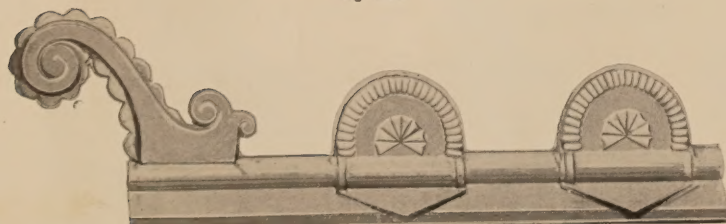
Height of Cresting Blocks, $7\frac{1}{4}$ inches from top of Ridge.

Fig. 287



Height of Cresting Blocks, 8 inches from top of Ridge.

Fig. 288



Height of Cresting Blocks, $7\frac{1}{4}$ inches from top of Ridge.

THE PENN METAL CEILING AND ROOFING CO., LIMITED, PHILADELPHIA, PA.

ENGLISH AND SPANISH ROOFING PLATES

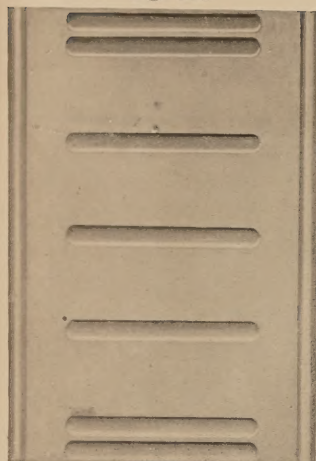
USED EXCLUSIVELY FOR ROOFING

MADE FROM GALVANIZED OR PAINTED STEEL STOCK, AND ONLY IN THE SIZES SHOWN

ROCK-FACED STEEL STONE

Fig. 308

SPANISH TILE
Fig. 305



To cover 100 square feet of roofing surface it will require
18½ Tiles of any gauge.

ENGLISH TILE
Fig. 306



To cover 100 square feet of roofing surface it will require
20½ Tiles of any gauge.

Size of Tile 25¼ inches by 36 inches, out to out. Lay to the weather 33 by 24 inches, lapping at sides, one corrugation and 3-inch lap at cross sections or two ribs. 24-inch by 33-inch surface in each tile after applying.

Size of Tile from out to out, 36 x 23 inches. Centres of corrugations on sides, 21½ inches. Length of tile allowing for cross lap of 3 inches—33 inches.

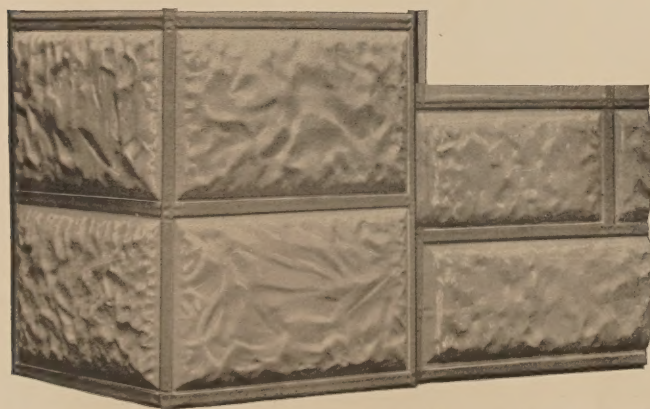
Weight of galvanized tile. Fig. 306.

Gauges, 28 —27—26 —24
Lbs., 4¾—5—5½—6¾.

Weight of galvanized tile. Fig. 305.

Gauges, 28—27 —26—24
Lbs., 5—5½—6—7½

Fig. 307



When used as Corner Finish always back inside with ¾-inch boards with of Stone. Block on each side.

Shows 291 bent at right angle in Centre Mortar Line for Corner Cover and Plate. Fig. 290 used for Main Covering on body of building.



Shows our Rock-Faced Steel products, as per fig. 290, page 59, in the body; 291 belt-line and corner-finish single sheets formed for this style of work, page 61, fig. 307.

SAGENDORPH'S ROCK-FACED BLOCKS

Fig. 295



Whole plate. Size of rock, 26 x 10 inches. Lap joint.

Fig. 296



Half plate. Lap joint. Size, 10 x 13 inches.

Fig. 297

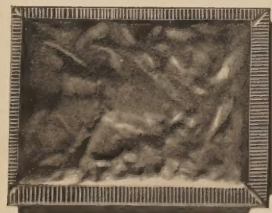


Whole plate. Lap joint. Size, 16 x 10 inches.

Fig. 298



Half plate. Size, 10 x 8 inches.



Duplicate of Fig. 296, showing Slip Lock Joint. Can be applied to Rock-faced Plates, Figs. 295 to 298.

Fig. 289



Size, 9 x 6 3/4 inches centre.

Fig. 346



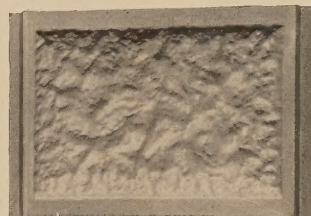
Rock-faced Plate with Bead Lap.
Size, 13 1/2 x 9 inches centre.

Fig. 300



Single Rock-faced Block with Flat Margin on four sides.
Extreme size, 18 x 9 1/2 inches.
Size of Stone, 7 3/4 x 12 inches.

Fig. 301



Shows Fig. 300 formed in Brake to cover Pilaster, offset at sides to allow Body Plates to butt against and complete the work. Brake forming extra charge.

Fig. 302



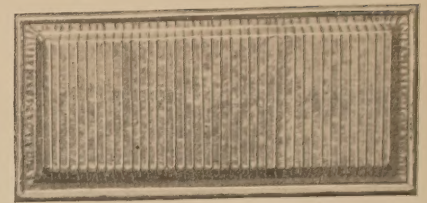
Rock-faced Dado, used with Rock-faced Wainscoting.
Size, 11 x 120 inches long.

Fig. 303



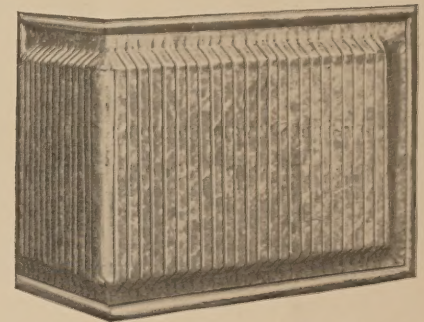
Special Rock-faced Whole Block (No. 2.) Half Plate of Rock-faced. Size of Plate, 12 x 12 inches.

Fig. 299



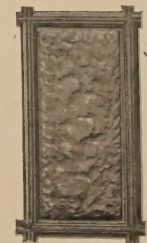
Corner Quoin Block. Size, 20 1/4 x 6 3/4 inches.

Fig. 299



Size, 6 3/4 x 13 1/2 inches. Shows Quoin Block bent for Corner Quoins, to alternate as in Fig. 316, page 64. In forming these blocks for quoins, snip at distance from one end 6 3/4 inches, top and bottom of block; then bend to angle and solder the cut places.

Fig 304



Special Rock-faced Half Block (No. 2.) Half Plate of Rock-faced. Size of Plate, 6 x 12 inches.

ROCK-FACED STEEL AND BELT MOULDINGS—Keystone Window Caps

Fig. 312



Shows Front of Building Covered with our Rock-Faced Steel Plates. Body plates, Fig. 290, page 57. Corner Plate, Fig. 291, page 57, also Belt Line below windows. Corner Plates made with offset as in Fig. 310, page 60, and applied as in Fig. 307, page 59. Belt Moulding Styles of Figs. 313 and 314. Caps made of Blocks from Fig. 291, page 57, with extra Keystone, size governed by width of windows or doors. Extra charge for time in making these Blocks. Cornice and Corner Blocks vary in price according to size and girth (see pages 50 to 52).

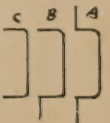
Fig. 313



Size $2\frac{1}{2} \times \frac{5}{8}$ in.

Mouldings for Belt used top and bottom of Rock-Faced Plate, Fig. 291 as in Fig. 312.

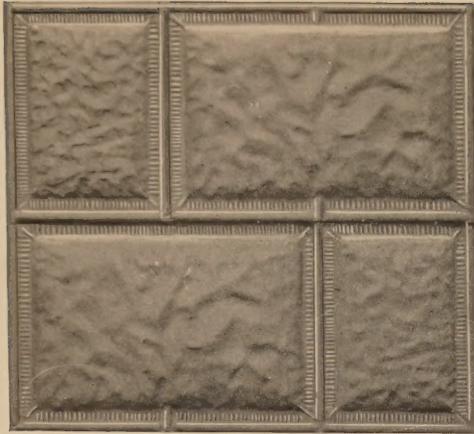
Fig. 314



Size $1\frac{1}{2} \times \frac{1}{2}$ in.

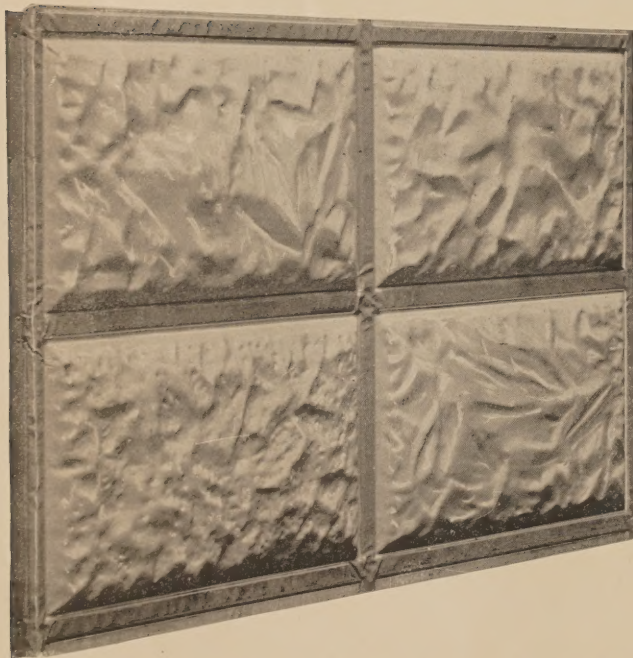
Belt Moulding as in Fig. 312, in Belt Line of Rock-Faced Plate under windows.

Fig. 309



Shows Break Joints with our special single Blocks as in Figs. 297 and 298, Page 58.

Fig. 310



Shows Fig. 291 prepared for Corner Finish and to be used as in Fig. 307, Page 59. Always state the amount of lineal feet required for corner, and we will prepare the edges and charge for time to do this work.

Fig. 311



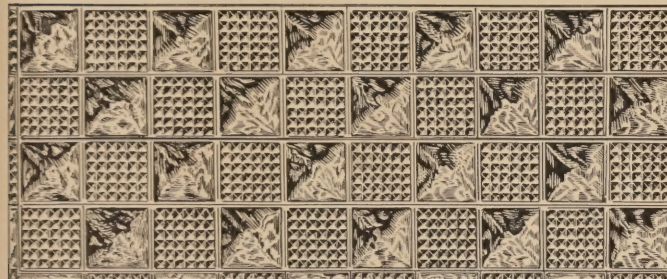
Shows our Special Single Rock-Faced Steel Stone and Corner Block, enriched Window and Door Trimmings. Ornamental finish made from Stamped Zinc. Styles, blocks used, Page 58, Fig. 298. Corner Block, Page 57, Fig 292.

GALVANIZED IRON OR COPPER FRONTS

Estimates furnished on receipt of drawings

Fig. 340

ITALIAN RENAISSANCE BLOCKS



Border or Belt Line Outside Building Finish ; Wainscoting for Interior.
Size, 25 x 60 1/2 inches.

Fig. 317



Enriched Belt Moulding. Painted Steel or Galvanized.
Size, 3 3/8 x 7/8 inches.

Fig. 339



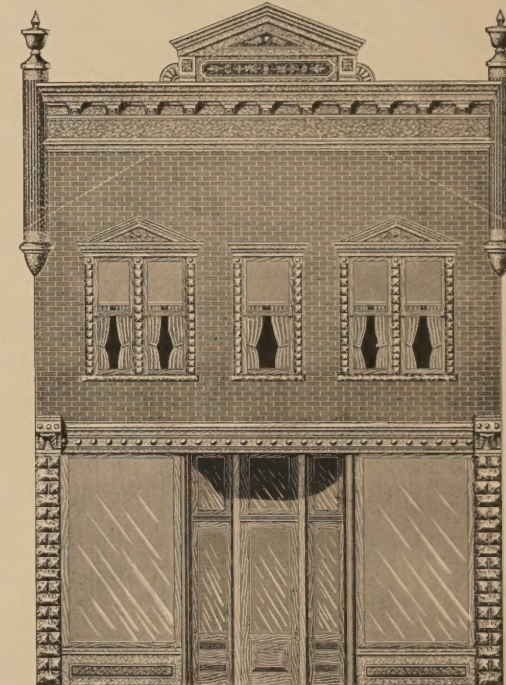
Enriched Belt Moulding. Painted Steel or Galvanized.
Size, 4 1/4 x 1 1/2 inches.

Fig. 340 1/2



Belt Line or Border. Size, 25 x 60 inches. Bolts, 6 inches square.

Fig. 318



FRONT ELEVATION

Showing Cornice especially adapted for false fronts, as shown by dotted lines. Body covering, Steel Brick or Rock-faced Brick, Page 59. Front Pilaster, Rock-faced, Fig. 292, Page 59.

This design makes a cheap, ornamental and up-to-date finish for old buildings.

SPECIAL ROCK-FACED BLOCKS AND QUOIN BLOCKS APPLIED

Fig. 315

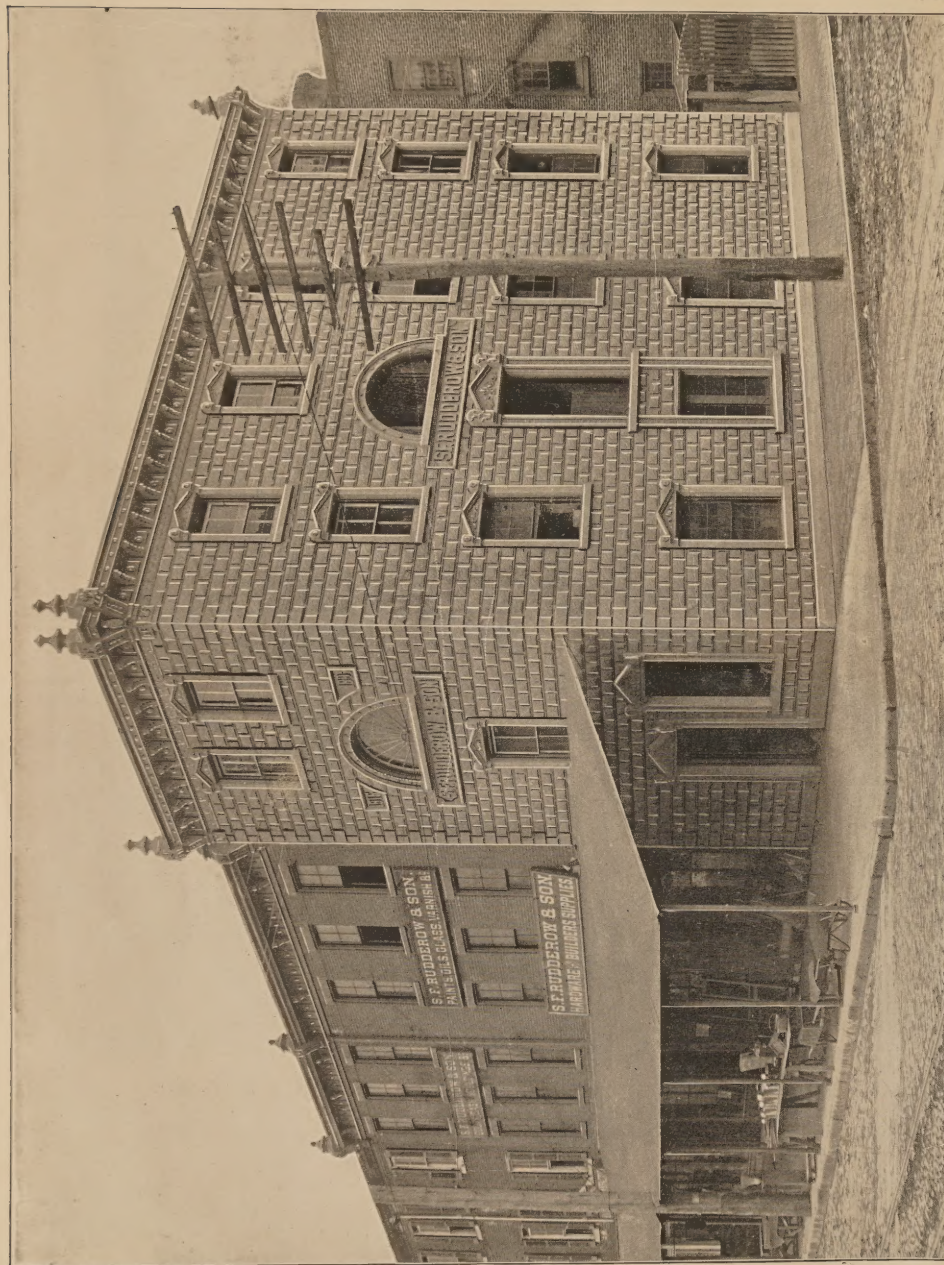


Fig. 316



These illustrations show our Special Rock-faced Steel Single Blocks and Corner Quoins. See Figs. 297, 298, 299, page 60.

Special Price List to Consumers for Work Complete on Buildings

Issued to enable them to fix prices on the various designs of Metal Roofing, Siding, and Fixtures manufactured by us. These prices are based upon the present prices of metal, and cost of applying by our own men in the city limits of Philadelphia, Pa. To these prices we add board and transportation of men, and freight on material for work out of the city.

(55c. PER SQUARE ADDITIONAL FOR PAPER LINING, laid under Roofing or Siding)

N. B.—Crating finials, corner finish, door and window caps, etc., extra.

AS PER CATALOGUE

(Standard Gauge Weight)

ON STEEL OR GALVANIZED PLATES, 80 TO 112 POUNDS TO THE 100 SQUARE FEET LAID

Standard Gauge, Pressed Standing Seam Steel Roofing, [three coats paint, one under-neath and two on top] laid per sq.	\$5.00
“ “ Extension Cleat, Self-cleating, Pressed Standing Seam Steel Roofing, [three coats paint, one under-neath and two on top]	5.25
“ “ Roll Steel Roofing, Standing Seam, [three coats paint, one under-neath and two on top] laid per square	5.00
“ “ Cluster Shingles, Steel, [three coats paint, one under-neath and two on top] laid per square	5.50
“ “ Roll and Cap Steel Roofing, [three coats paint, one under-neath and two on upper side] laid per sq.	5.25
“ “ V Crimped Iron Roofing, [three coats paint, one under-neath and two on upper side] laid per square	4.75
“ “ V Crimped Iron Roofing, Centre Crimp [three coats paint, one under-neath and two on upper side] laid per square	5.25
“ “ Corrugated Iron, 2½, 1¼, in. P. S. S. Edges [three coats paint, one under-neath and two on upper side] laid per square	5.25
“ “ Elizabethan Tile, [three coats paint, one under-neath and two on upper side] laid per square	6.50
“ “ Corrugated Roofing, 2½ cts. [three coats paint, one under-neath and two on upper side] laid per sq.	4.75
“ “ Embossed or Beaded Centres, Steel, Roll and Filled Cap Roofing, [three coats paint, one under-neath and two on upper side] laid per square	5.50
“ “ Corrugated, 5⁄8 or 1¼ in. Centres, siding or roofing, [three coats paint, one under-neath and two on upper side] laid per square	5.25
“ “ Corrugated (2½) for Siding or laid complete, per square, [painted on both sides] per square	4.25
“ “ Steel Clapboards, [painted on both sides] laid per square	4.75
“ “ Steel Bricks, [painted on both sides and penciled] laid per square	6.50

N. B.—For galvanized material, any of the above styles, add \$2.50 per square.

On each heavier gauge, add \$1.50 per square extra to any one of the above.

On roofs having valleys or hips, we add 50 cents per square extra.

For applying Obelisk Paint on Tin or Iron Roofs, straight work, per 100 square feet	\$1.00
“ “ “ and Cement, with Fibre Patches, per 100 square feet (leaky roofs),	1.50
“ “ “ “ Mesh, on entire surface, per 100 sq. feet	3.25

(this is on condemned Tin or Iron Roofs

These prices enable us to furnish the best of materials, employ skilled labor, make us a fair living profit, and insures the consumer a first-class job; one that will stand the elements, and be a credit to us. Our work and materials have stood the elements and mechanical forces for many years, and established a reputation for us that our competitors envy. Special metal fixtures and ornaments; prices named on application; all zinc or galvanized materials quoted separate, wholesale or applied.

Approximate Amount of the Above Goods our Men Lay per Day

(TEN HOURS)

One skilled man (\$3.50 per day), with a helper (\$1.50 per day), can lay complete on plain work (no hips or valleys) Pressed Standing Seam, with or without Extension Cleat, 12 squares; V Crimped, 18 squares; Roll Cap, 15 squares; on hips and valleys, 6 to 8 squares; Corrugated Siding, 12 squares; with opening in siding, 8 squares; Corrugated Roofing, 15 squares; Painting Tin or Iron Roofing, no patching, 15 squares; with patching, 10 squares; entire roof covered with Fibre Mesh and Cement and painted two coats, 6 squares complete.

Yours very respectfully,

THE PENN METAL CEILING AND ROOFING CO., Limited

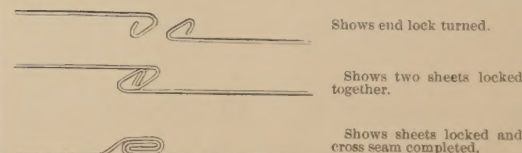
Applies to Roofing in Rolls, Pages, 31, 32 and 33

A WORD ABOUT CROSS SEAMS

Every mechanic who has laid Roll Roofing has found that the old style of angle-locked cross seams would come apart when he began to tong up the Standing seam, which not only delayed him in completing the work, but made it impossible to make a strictly water-tight job.

Our Double-locked Cross Seams cannot come apart and will never leak. When this lock is wanted, add 10 cts. per square to net prices.

Construction of Double-Locked Cross Seams



Shows end lock turned.

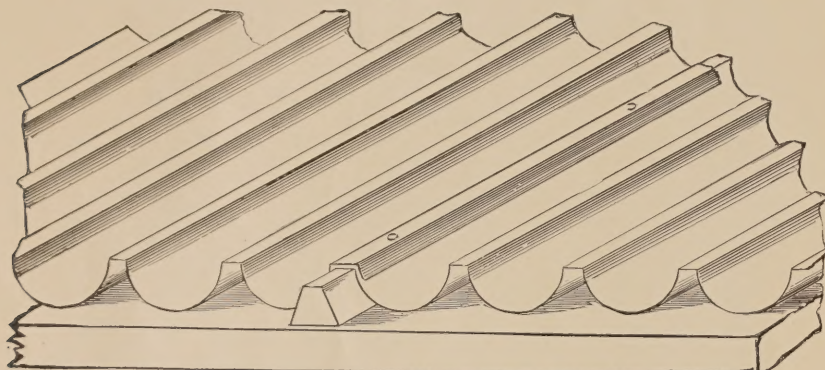
Shows two sheets locked together.

Shows sheets locked and cross seam completed.

ESCALLOPED STEEL SHEETS

A new style of roofing and siding, made from steel sheets—a form of crimps or escalloped that gives more stiffness to a sheet of metal than the old way of crimping or corrugating. This style laid as roofing with escallops concave, Fig. 343, presents a neat and novel appearance, and when reversed side of sheet is applied to the sides of building, it has still a different but neat appearance.

Fig. 343



Shows Escalloped Steel as used for roofing. We furnish the three-sided wood sticks to strengthen the side joints, and recommend the use of a lead washer between nail head and the sheet.

N. B.—This style of **Plates made from Painted, Galvanized, Zinc, or Copper Sheets**, covering especially adapted to Plain Columns with or without **Capitals and Bases**.

Fig. 345



Neck, $8\frac{1}{2}$ inches. Height, 10 inches.
Full Cap, \$1.20.

Fig. 344



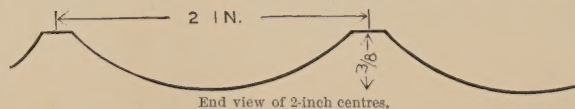
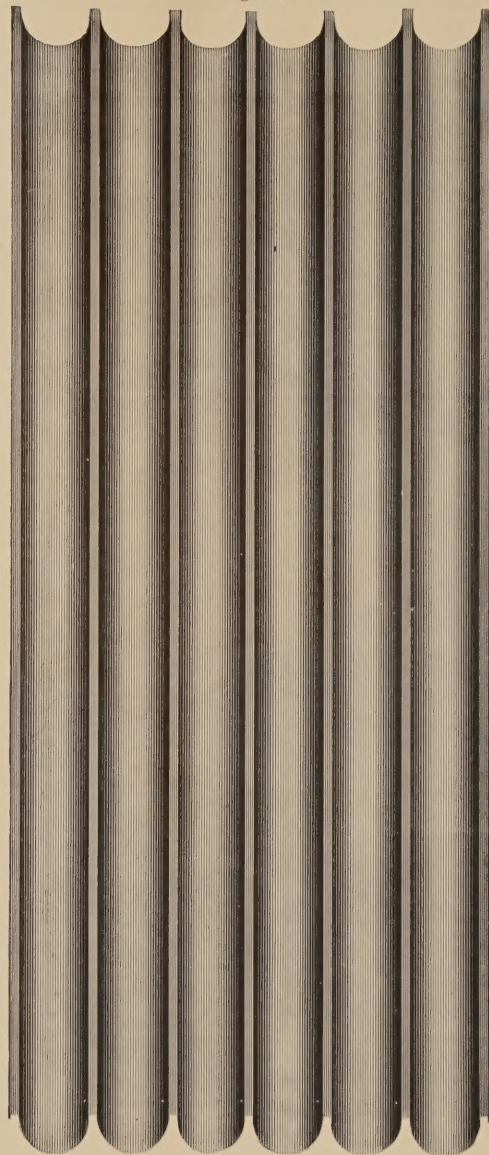
Neck, $10\frac{1}{2}$ inches. Height, 9 inches.
Full Cap, \$7.00.
Also—Neck, 6 inches. Height, 5 inches.
Width, $11\frac{1}{2}$ inches. \$3.75.

Sheet, 25 inches wide by 4 to 10 feet long.

Shows correct way of laying escalloped roofing and siding; wood filler is placed under sheets at lapped edges, and where to nail.

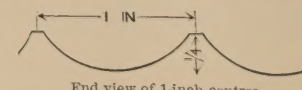
Many different styles and sizes shown in our special catalogue of zinc work.

Fig. 341



66

Fig. 342



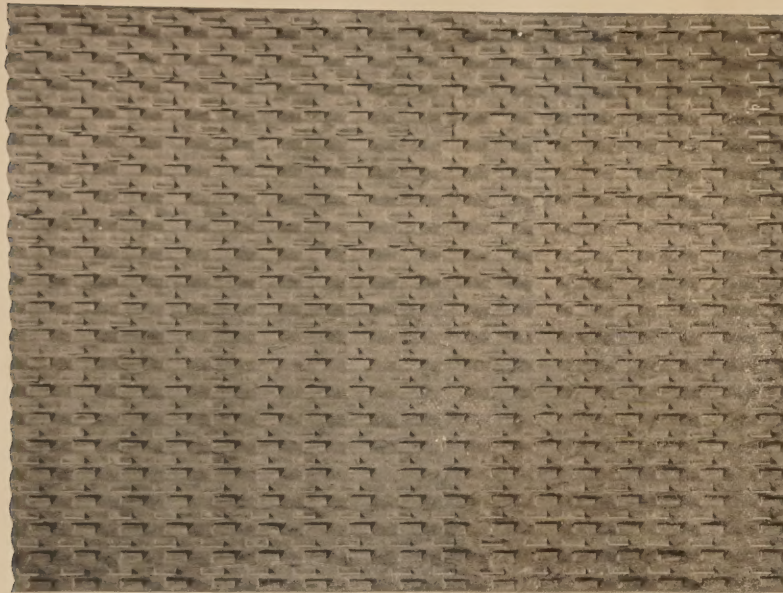
Shows full sheet, 25 inches wide by 10 feet long; 1 and 2-inch centres from crown to crown.

1-inch centre, sheets, 25 inches wide by 4 to 10 feet long.

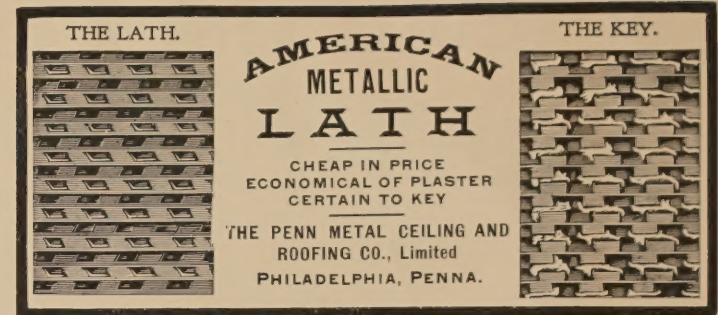
METAL LATHING

AMERICAN BURR LATH

Fig 319



American Burr Metallic Lath. Size of sheets, 27 x 96 inches.

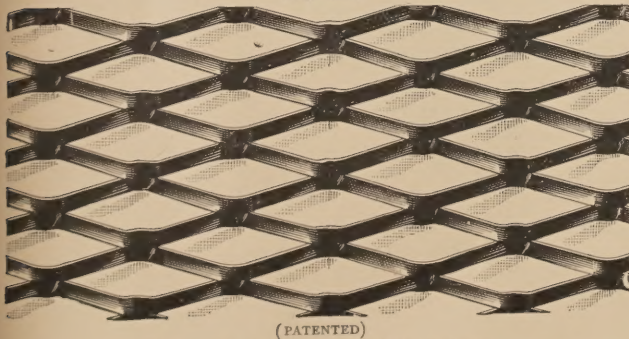


In plastering the first coat the mortar fills the opening, crowds through and interlocks with the opposite key, fastening securely without cutting off and dropping. The corrugations are higher than the keys, which are thus protected against pressure that might close them.

American Metallic Lath is patented and is rapidly proving itself the best lathing material on the market. We manufacture it ourselves and can fill all orders promptly and well. This lath is corrugated lengthwise with the sheet, and is so stiff that it will not spring under the trowel, and can be covered more rapidly than the wooden lath. Having a double interlocking key, the mortar will fasten to it more firmly and with less waste than to any other style. It will not curl or sag under the weight of plaster, as is the case with the wire lath and other makes which have not sufficiently heavy corrugations to insure stiffness. Our lath can be used on partitions having studs of 20-inch centres, or more, depending upon the requisite strength of the partition; can be used on channel bar or rod studs, and plastered on both sides by letting the plaster keys harden after the face is plastered, then using them as keys for the opposite side; the plaster fastens securely to them, thus forming a firm, vermin and sound proof partition, not over two inches thick, saving valuable space in construction and rendering the partition fire proof. The lath should be laid with the corrugations parallel to the floor, the tongues against the studs.

CORRUGATED EXPANDED METAL LATH

Fig. 320

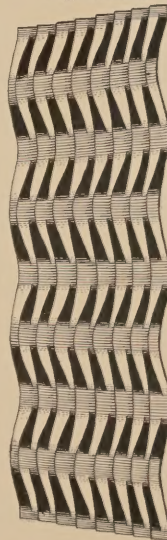


(PATENTED)
No. 1. Face view showing pockets for plaster.
Size of Stock Lath, 27 x 48 inches.
10 sheets to the bundle.

CORRUGATED EXPANDED METAL LATH

Fig. 320-a

POINTS OF MERIT
First. Strength.—It does not sag or bow with weight of wet plaster.
Second. Pockets which compel covering rear cut edges with plaster—no rusting.



(PATENTED)
Size of Lath, 27 x 48.
No. 2. End view showing corrugation.

Third. Corrugations transversely on sheet give additional strength.
Fourth. Depth.—The depth of web gives it a perfect key or clinch.
Fifth. Finish.—No leveling up in finishing. Makes strong, true walls.

Fig. 321



Perpendicular Section of Lath (reduced size) showing reverse side and key.

PATENT STEEL LATH

Has been before the public for a number of years, and is undoubtedly the best Sheet Steel Lath now in use.

SAVES TIME AND MATERIAL

This Lath, having large key openings and a very small percentage of dead surface, receives and holds the plaster very readily without waste, enabling the plasterer to cover a much larger space than he could with other laths, besides being sufficiently stiff to carry a heavy first coat, which may then be finished with equally as good results as with three-coat work on wire or wooden lath.

SAVES EXPENSE

The TURNBULL & CULLERTON STEEL LATH can be plastered much cheaper than any other metal lath in the market, as it requires less mortar, from the fact that the lips or ledges

Fig. 322½



The Turnbull-Cullerton Steel Lath. Patent No. 511,823, Jan. 2, 1894.

support the keys, thus preventing plaster from falling between the partitions and loading down the building with large quantities of waste material in the effort to make a satisfactory clinch as required in the use of wire or expanded metal lath—a waste which has to be paid for by the owner—besides effecting a considerable saving in the amount of labor required to put it on.

GIVES A FEELING OF SECURITY

When a building is lathed with this Patent Steel Lath the owner may feel assured that his walls will be not only durable and satisfactory, but he will be entirely relieved of that anxiety and dread which by the use of FIRE-TRAP LATH has always been a menace and burden.

DIMENSIONS

The TURNBULL & CULLERTON PATENT STEEL LATH is made 13½ inches wide and 96 inches long, weighing 5½ pounds per yard, and is packed or nested in packages of 10 yards each, properly wired at both ends of the packages.

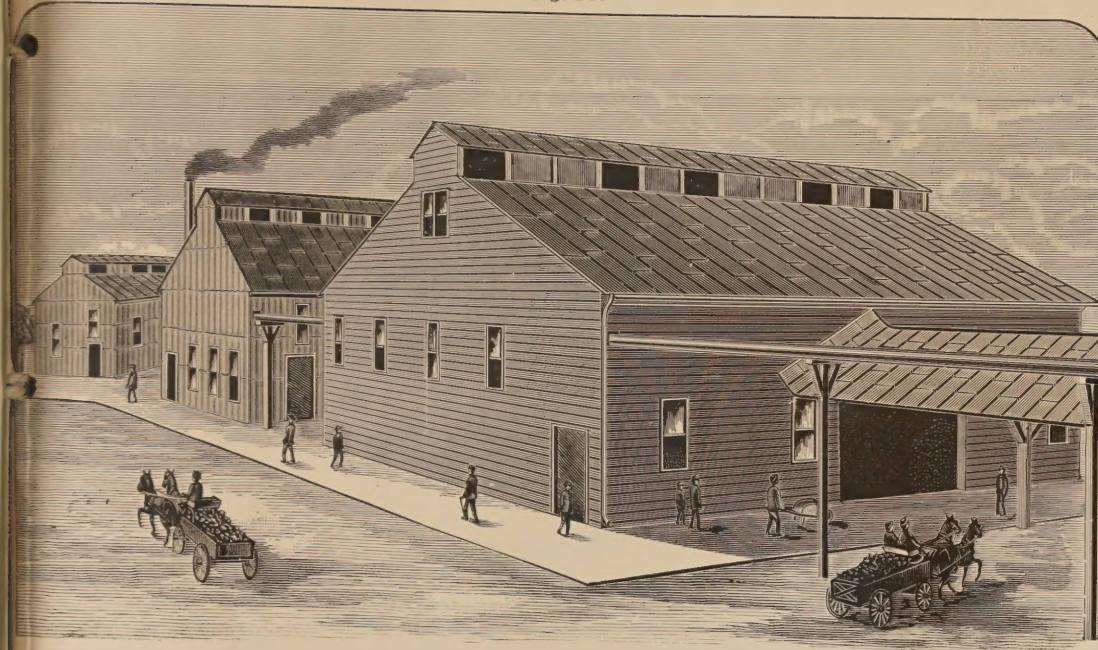
No waste of time or material, as it saves nearly one-half over other laths. Makes a strong and true wall, and is FIRE-PROOF.

The corrugated bridge and depressed lip on rear side give it strength, prevent waste, and make it the ONLY lath that can be shipped any distance without damage to keys, as it "nests."

Reduces Fire Insurance 25 per cent.

APPLICATION OF PRESSED STANDING SEAM AND CORRUGATED SHEETS TO BUILDINGS USED FOR MANUFACTURING PURPOSES

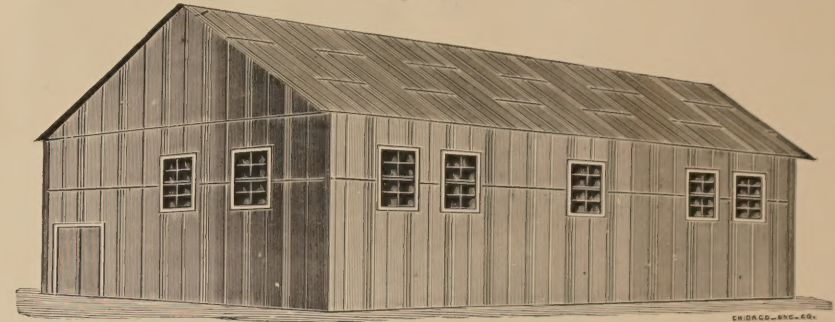
Fig. 351



Shows application of Corrugated Sheets and Metal Clapboards on sides, and Pressed Standing Seam on the main roofs and shedding.

1st—Building is 88 x 80 feet; 50 feet to ridge; the sides are covered with our Metal Clapboards, and the roof with Pressed Standing Seam. 2d—Building is 70 x 80 feet; 45 feet to ridge; covered with Corrugated Iron. 3d—Building is 60 x 70 feet; 40 feet to ridge; covered with Corrugated Sheets. This plant is located at Gilead, 6 miles from Cincinnati, on the Big Four R. R., and is known as the Cincinnati Desiccating and Fertilizing Company. The entire plant is covered with our sheet metal goods. It will be noticed that in applying the Corrugated Sheets to the sides that we laid it crosswise, direct on the studding. This makes a stronger and neater job; and when it was completed, it was insured upon the same basis as if it were constructed of stone or brick; the cost was one-third of either.

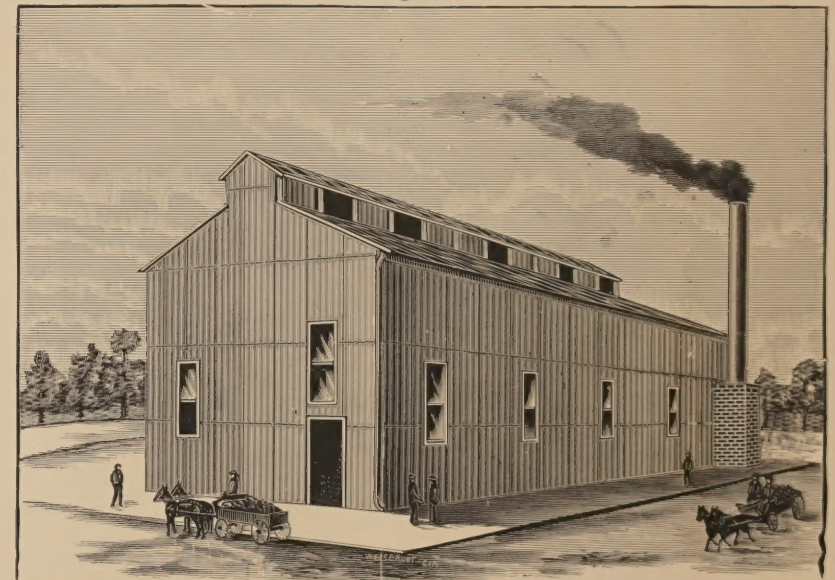
Fig. 352



Shows building roofed and sides covered with Corrugated Sheets edges and centres.

This is a cheap and durable metal covering for buildings of light construction. The material is made from 30-inch wide sheets, of any length up to 10 feet. A double Corrugation is made in outside edges, and in centre of sheets; this stiffens the plates and provides for end and side laps, with water-proof results. Width after forming, 27 inches.

Fig. 353



Shows application of Corrugated sides and flat Standing Seam Sheets for Roofing. (Corrugated Sheets applied crosswise.)

For a cheap, durable, fire-proof covering, Corrugated Sheets is unequaled, and is extensively used all over the country for all kinds of buildings, porticos, awnings, etc. If parties ordering Corrugated Sheets will give exact length of rafter and width of roof, as per our diagram sheet, we can often send sheets of right length to fit roof and sides, and thus save labor, cutting and waste of iron.

SPECIAL WINSLOW GALVANIZED CAR ROOFS

MADE FROM THE BEST BLOOM GALVANIZED SHEETS

NUMBER 26 and 24 GAUGE

Fig. 336



Shows Sheet of Winslow Car Roof.
 Length, 113 inches. Extreme width of sheet, 19½ inches. Centres of sheet, 18½ inches.

Fig. 337



Shows Full Cap of Winslow Car Roof. (Caps curved to Radius required.)
 Length of Cap, 111¾ inches. Width, 3 inches.

Fig. 338



Shows Half Cap of Winslow Car Roof. (Caps curved to Radius required.)
 Length of Cap, 111¾ inches. Width, 2¾ inches.

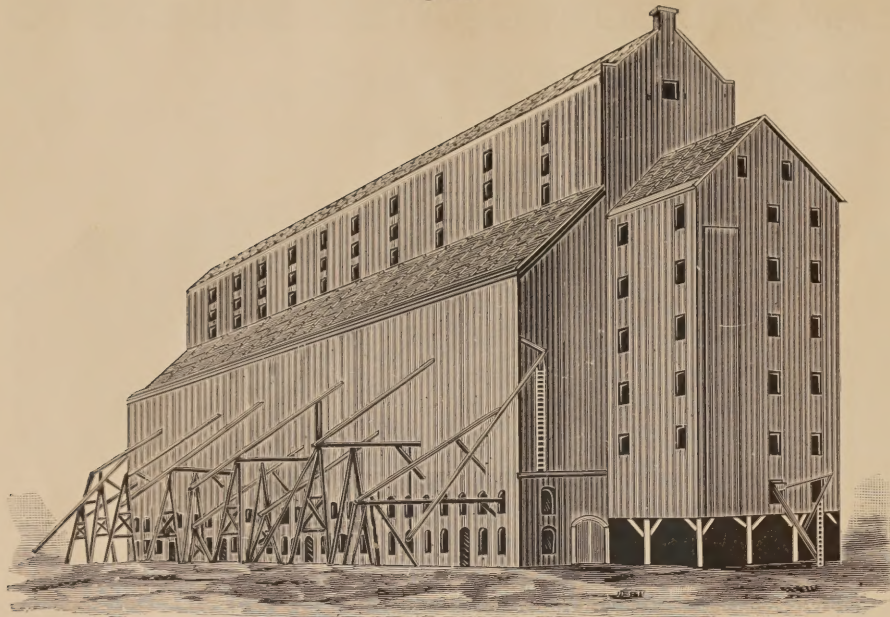
36 and 34-foot Car uses the same length of Sheets and Cap as above shown.

28-foot Car uses Sheets 109 inches long. 28-foot Car requires viz. : 16 Sheets. 15 Full Caps. 2 Half Caps. 34-foot Car requires viz. : 20 Sheets, 113 inches long. 19 Full Caps, 111¾ inches long. 2 Half Caps, 111¾ inches long.	28-foot Car uses Caps 107¾ inches long. 36-foot Car requires viz. : 21 Sheets, 113 inches long. 20 Full Caps. 2 Half Caps. 40-foot Car requires viz. : 24 Sheets, 113 inches long. 23 Full Caps, 111¾ inches long. 2 Half Caps, 111¾ inches long.
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PRICES ON LARGE OR SMALL LOTS PROMPTLY GIVEN

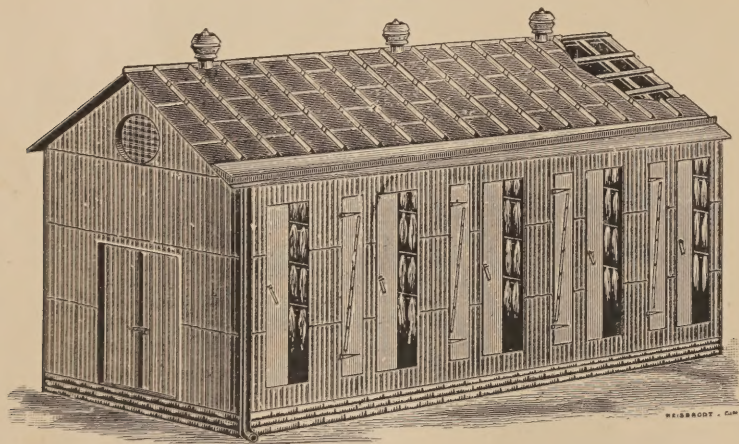
SUGGESTIONS FOR FIRE-PROOF BUILDINGS

Fig. 347



Shows Corrugated Sheets applied as Siding, and Standing Seam for Roofing.

Fig. 348

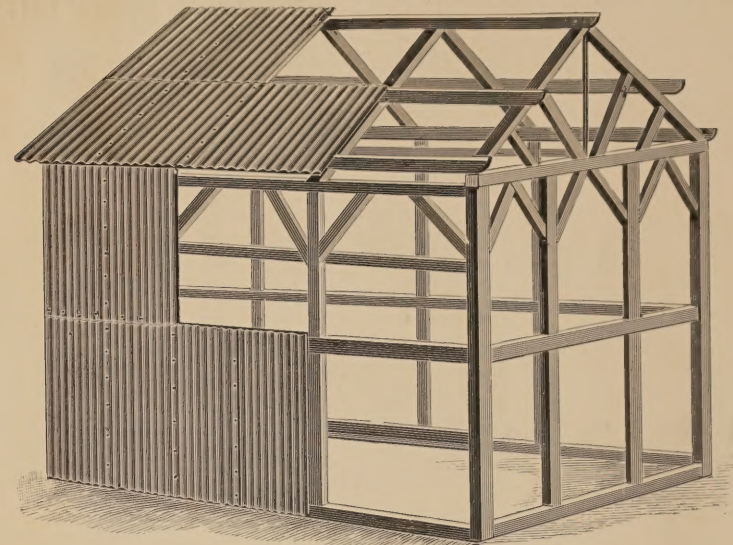


Shows Iron Tobacco Barn or Warehouse covered with V Crimped Roofing and Corrugated for Siding.

Tobacco cured in Iron Buildings increases in value from 15 to 20 per cent. In other words, the difference in the price of tobacco cured in an Iron Building will pay for the iron in from five to seven years.

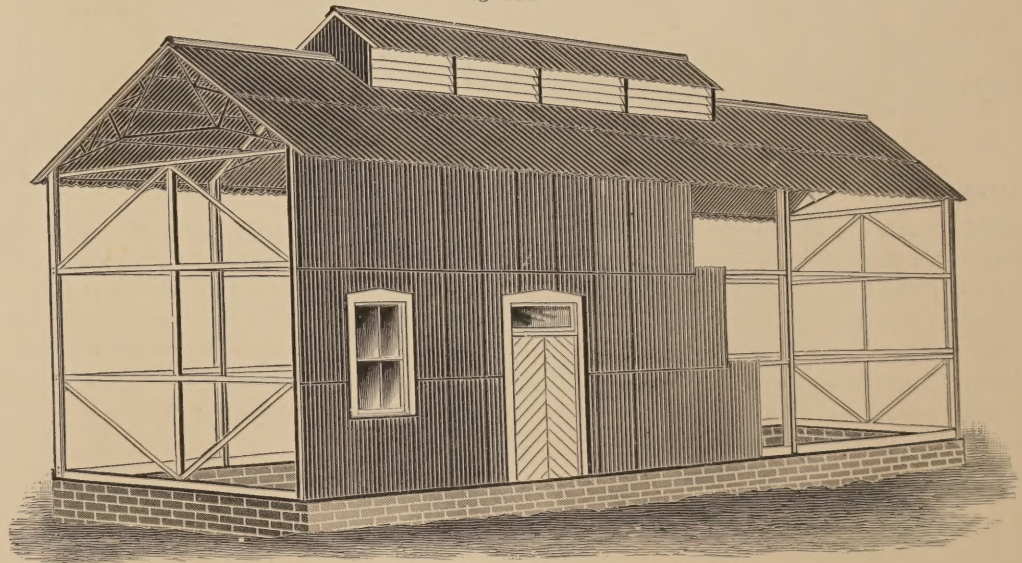
At the low prices which have been prevailing during the past two years for leaf tobacco, it behooves farmers and redriers of tobacco to put their goods in such shape that they will command the highest prices to insure a profit. This end can only be secured by building warehouses in the manner shown. The burning of tobacco barns is of common occurrence, causing the rate of insurance to be placed high. The insurance can be reduced fully one-half by using Metal, as the buildings so constructed are fire-proof, and cannot be destroyed by either lightning, spontaneous combustion or incendiarism.

Fig. 349



Shows application with necessary lap at sides and ends of straight Corrugated Sheets to an Elevator, Mill or Railroad Depot for siding.

Fig. 350



Shows application of Corrugated Sheets on Skeleton-frame Building, made of Angle Iron or Timber.

SAGENDORPH'S METAL ROOFING AND SIDING—TILE OR SHINGLES

FANCY FINIALS FOR LARGE OR SMALL TOWERS



Fig. 361
Dia., 4 in.
Height, 18 in.

Fig. 362
Dia., 7 in.
Height, 2 ft., 8 in.

Fig. 363
Dia., 4 in.
Height, 12 in.

Fig. 363, Height, 17 in.; dia. bulb, 4 in. Price, each
 " 361, " 24 " " 5 " 4.50
 " 362, " 40 " " 7 " 6.75

Made from stamped zinc, and mounted
on base of any shape or size.

(Extra charge for base)

For Fancy Finials and Ridging, see
pages 56, 57 and 58.

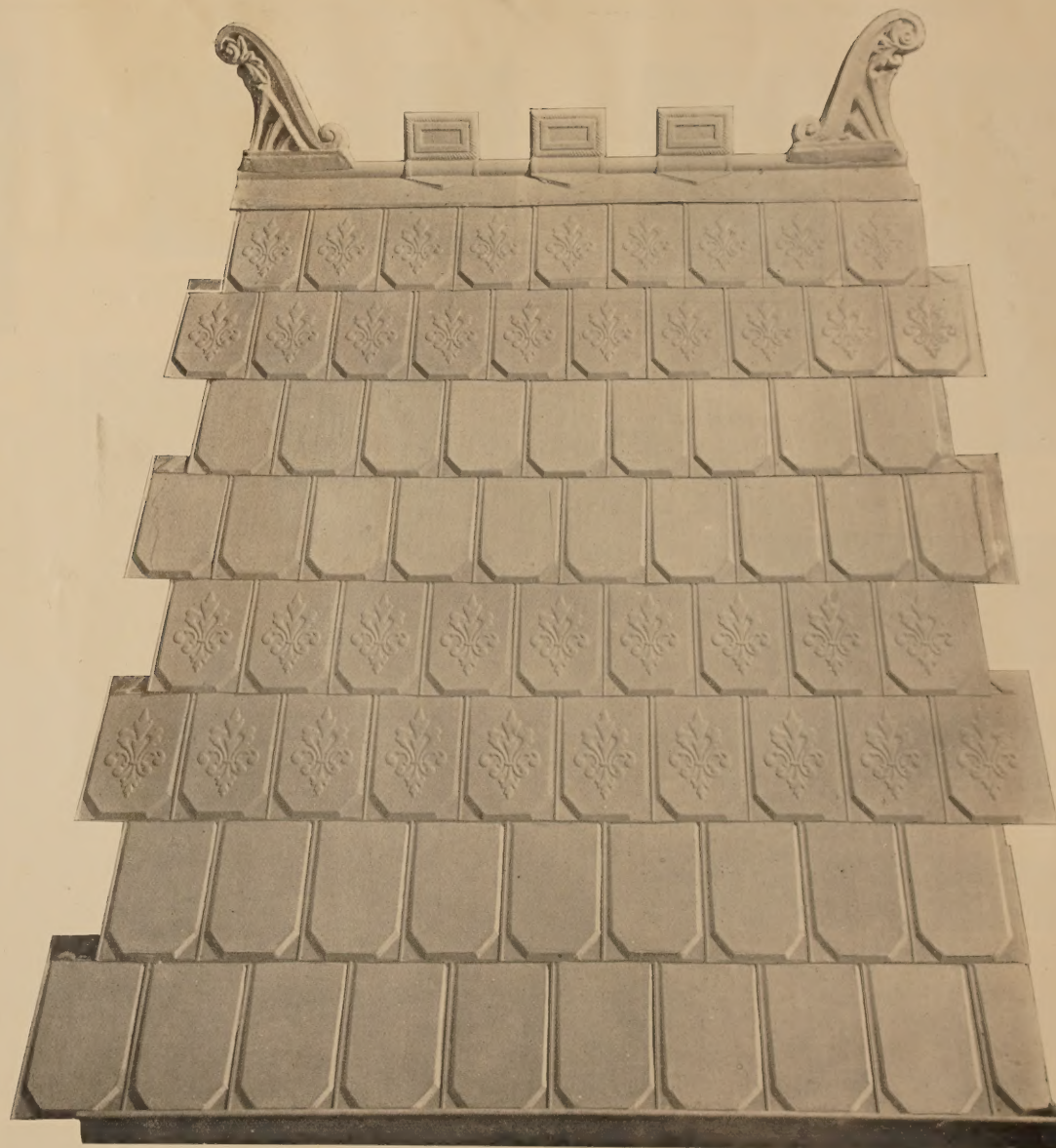


Fig. 364

Shows plain and embossed tile, also fancy ridging, finials and hanging gutters. For Ridging, all styles, see pages 56, 57 and 58.

SAGENDORPH'S METAL ROOFING AND SIDING—TILE OR SHINGLES

GENERAL DIRECTIONS FOR LAYING METAL SHINGLES

Begin at the lower left hand corner of the roof. See that your shingles are straight with the eaves of the building. Let your first course project over the eaves about one inch or so. Strike chalk line across roof and lay to this line.

After the first shingle of your course is laid and nailed, the second shingle must be held rather upright, until the hook along its left hand edge has caught under the fold and into the bead of the lock of the right hand edge of the shingle already laid. The second shingle must then be brought down to its place upon the roof, even with chalk line, and **then pulled to the right until the two beads on the two shingles forming the lock are as tight against each other as is convenient to make them, all the time keeping your courses straight with chalk line, and then nailed.** All other shingles are laid in like manner.

At the ends of the building, let the shingles project about one inch over bargeboard, turn them down and nail neatly. In starting the next and subsequent courses, every alternate course will start with a half shingle in order to break joints, as shown in cut, Fig. 360, page 74.

The lower edges of shingles of the second and subsequent courses must **rest upon the raised bead** which runs **across** each shingle of the course below on a level with the top of the side bead lock, and should **fit up against the step** just above the bead. This is clearly shown in Fig. 372, page 76. The **raised bead (below the top line)** at the **top of each shingle**, being level with the top of the side lock, makes it unnecessary to come to an exact "center" of the shingle below, with the side joints of the upper course to make a weather tight joint; but to give the best **appearance** on the roof, they should be laid as shown in cuts.

Nail only where nail holes are punched in the nailing flange for that purpose, except where cutting and fitting is necessary, in which case the good judgment of the workman must be his guide where to nail.

If there be a gutter formed in the roof near the eaves, have the shingles rest upon it about as you would if using wood shingles or stone slate.

(We furnish also, when desired, a neat gable end finish, which is nailed in place after roof is all completed, as above.)

Fig. 360



FLASHING, ETC.

In finishing around skylights, dormers, chimneys, etc., turn the shingles up about three inches, and use counter flashing down over their top edges, so as to make a tight job.

If it be a porch or other roof with top edge against a brick wall, use our porch flashing, and insert the shingles exactly the same as at the ridge when our Ridge Capping is used on ridge.

If the wall is frame, the upper edge of the flashing should go under the weatherboards, or be made tight with cement, or in any way which a good workman may devise to make a tight job.

CORNER FINISH

Our corner finish is exactly like our plain hip covering and is used **down the corners** of a structure, when the sides of building are covered with our shingles. It is put on in exactly the same manner as the hip covering, and is applied **after sides are covered with shingles.**

In using the shingles for siding buildings, start your first course with a whole shingle, allowing it to project about an inch past the corner, to be bent around the corner and nailed exactly as described for hip covering, the second course with a half shingle, and so on to the top, the same as on the roof.

NAILS

Steel barbed wire nails, 1 inch, No. 13, are better and cheaper than any others. We supply them when ordered. See price list.

NOTE—Always strike chalk line from left to right at eave of roof, and apply the shingle exact to this line across the roof. Repeat this until ridge of roof is reached. (To omit this, difficulty will follow.)

Fig. 360 shows manner of applying to mansard or double pitch roof, using embossed and plain tile in double rows, if desired, or all of one style.

SAGENDORPH'S METAL ROOFING AND SIDING—TILE OR SHINGLES

FANCY FINIALS FOR LARGE OR SMALL TOWERS



Fig. 361
Dia., 4 in.
Height, 18 in.

Fig. 362
Dia., 7 in.
Height, 2 ft. 8 in.

Fig. 363
Dia., 4 in.
Height, 12 in.

		Price, each
Fig. 363, Height, 17 in.; dia. bulb, 4 in.		\$3.00
" 361, " 24 " " " 5 "		4.50
" 362, " 40 " " " 7 "		6.75

Made from stamped zinc, and mounted
on base of any shape or size.

(Extra charge for base)

For Fancy Finials and Ridging, see
pages 56, 57 and 58.

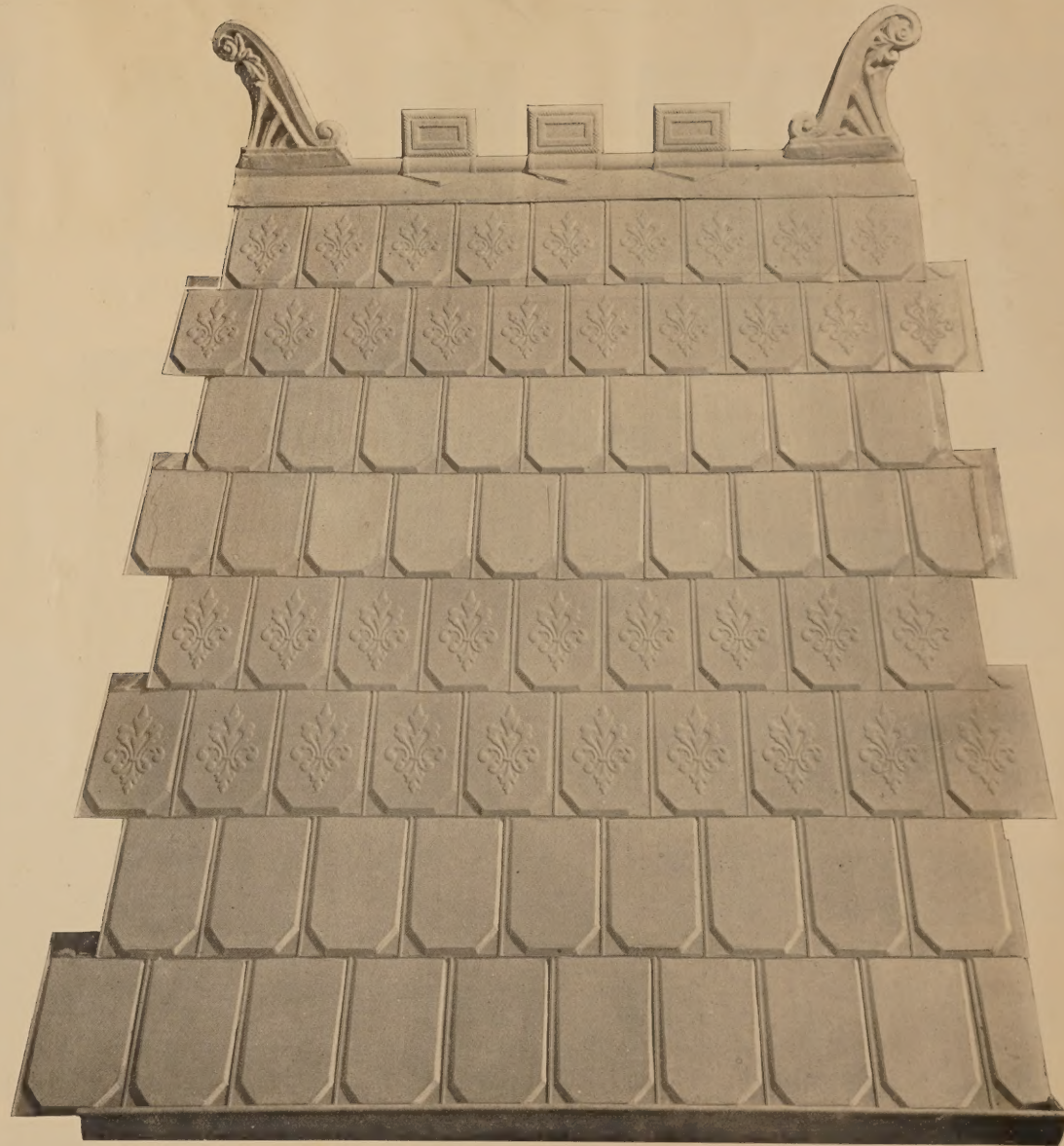


Fig. 364

Shows plain and embossed tile, also fancy ridging, finials and hanging gutters. For Ridging, all styles, see pages 56, 57 and 58.

SAGENDORPH'S METAL TILE OR SHINGLES, WITH LIP AND BEAD LOCK

PAINTED STEEL, TIN, OR GALVANIZED MATERIAL. (COPPER WHEN DESIRED)

EMBOSSED METAL TILE

Fig. 365



Blanks, 14 x 20 inches.
Cover to weather, 12 $\frac{1}{4}$ x 18 inches.
No. tile to cover 100 sq. ft., 64.

Fig. 31



Metal Combing Cap, medium, made from 12 and 14-inch stock. 1st flange, 1 inch; 2d flange, 3 and 4 inches, oval center. Diameter, 1 $\frac{1}{2}$ to 2 inches.

Fig. 33



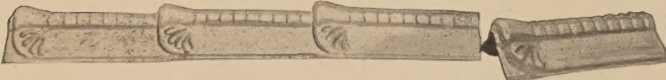
Metal Combing Cap, special, made from 6 to 8-inch stock. 1st flange, $\frac{1}{2}$ inch; 2d flange, 1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ inches, oval center. Diameter, 1 inch.

Fig. 279



Rope Mould, Ridding. Girth, 8 $\frac{1}{2}$ inches. Rope roll, 2 $\frac{1}{4}$ inches diameter.

Fig. 280



Japanese Hip. Each section covers 12 inches.
Made from painted steel, tin, galvanized or copper.

Any of the above ridding made from painted steel, tin, galvanized or copper.

Fig. 366



Blank, 10 x 14 inches.
Cover to weather, 8 $\frac{1}{4}$ x 12 inches.
No. tile to cover 100 sq. ft., 141.

Fig. 367



Blank, 7 x 10 inches.
Cover to weather, 5 $\frac{1}{2}$ x 8 $\frac{1}{2}$ inches.
No. tile to cover 100 sq. ft., 297.

Fig. 368

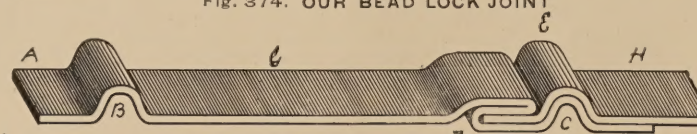


Blank, 7 x 10 inches.
Cover to weather, 5 $\frac{1}{2}$ x 8 $\frac{1}{2}$ inches.
No. tile to cover 100 sq. ft., 297.

Fig. 372



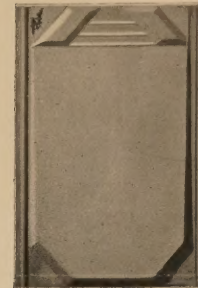
Fig. 374. OUR BEAD LOCK JOINT



A, lock lip. B, locking top bead. C, under locking bead. D, nailing flange. E, double bead lock. F, locking lip and loop keeper. G and H, tile proper.

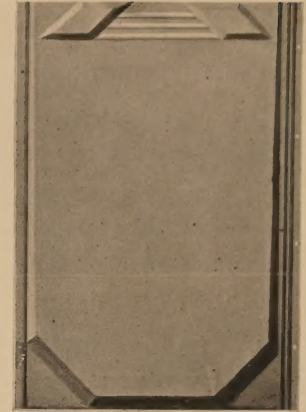
PLAIN METAL TILE

Fig. 369



Blank, 10 x 14 inches.
Cover to weather, 8 $\frac{1}{4}$ x 12 inches.
No. tile to cover 100 sq. ft., 141.

Fig. 370



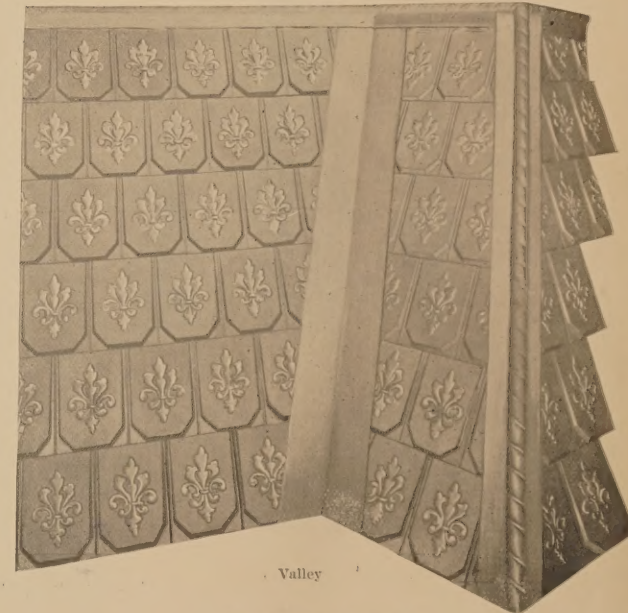
Blank, 14 x 20 inches.
Cover to weather, 12 $\frac{1}{4}$ x 18 inches.
No. tile to cover 100 sq. ft., 64.

Fig. 373

Fig. 371



1 inch Wire Nail.



Valley
Shows hip and valley finish.

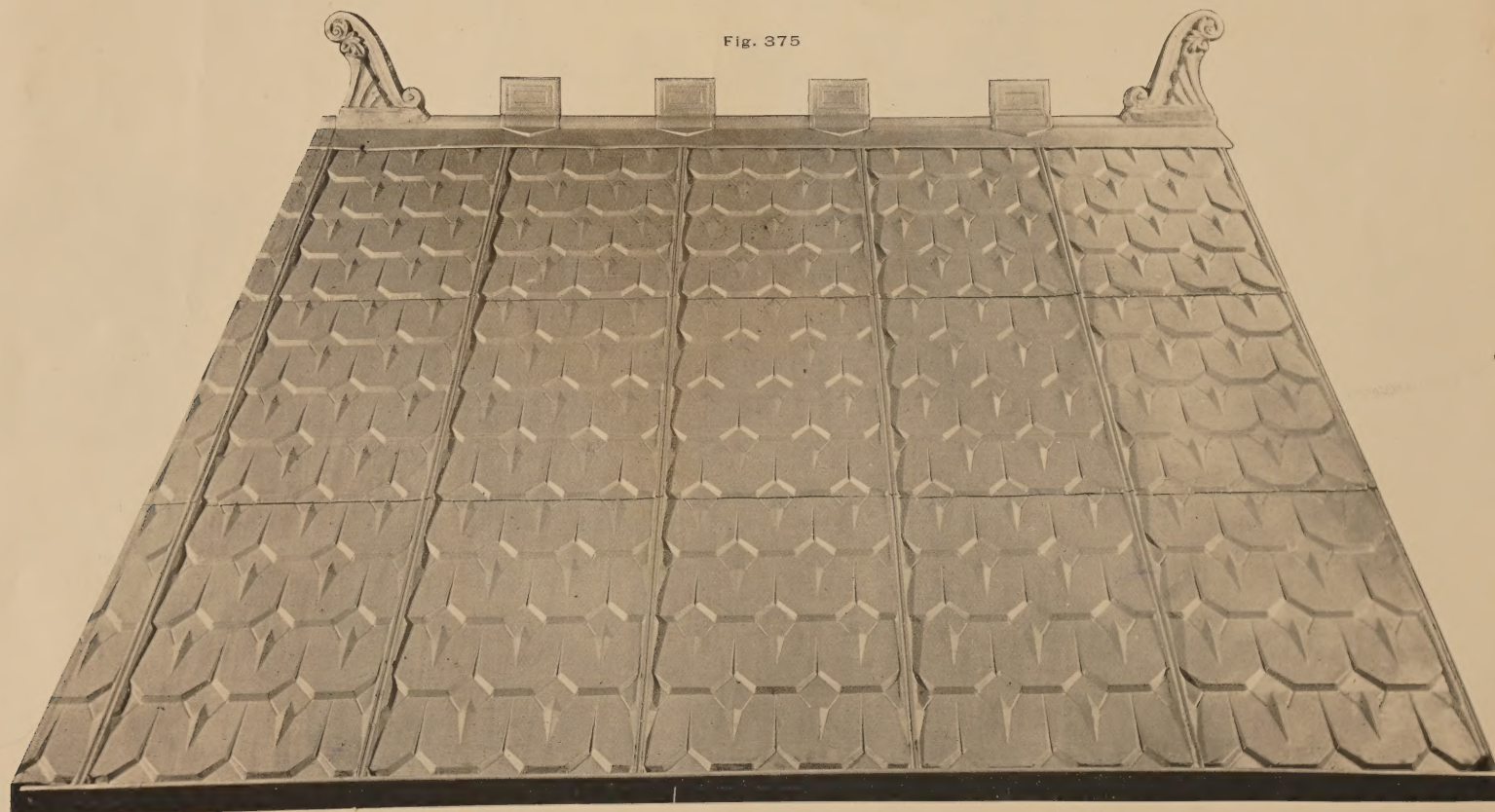
Hip

N. B.—For fancy ridding and finials, see pages 56, 57 and 58.

ELIZABETHAN TILE PLATES AND FANCY CRESTINGS

(See page 35)

Bold in Relief, Perfect Water Tight Joints and Cross Laps, Quickly Applied and Durable

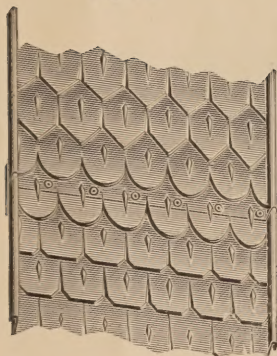


Showing manner of applying, using wire nail and lead washer. A perfect roof covering. Painted or galvanized. No. 28 or 26 gauge. Roofing Plates 25 x 32 inches in size.

CLUSTER METAL TILE

(See pages 34 and 35)

Fig. 119



Cross Joint, with Pressed Standing Seam Edges, using Straight Cleat, as in Fig. 376.

Fig. 376

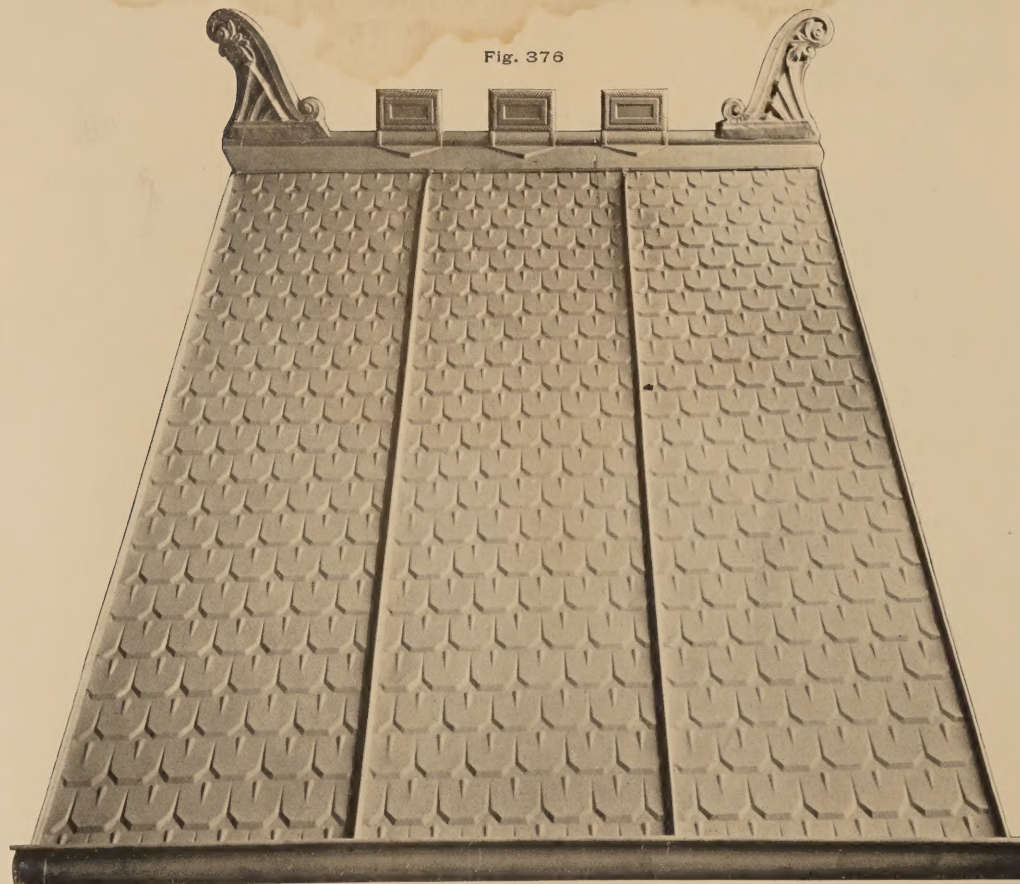
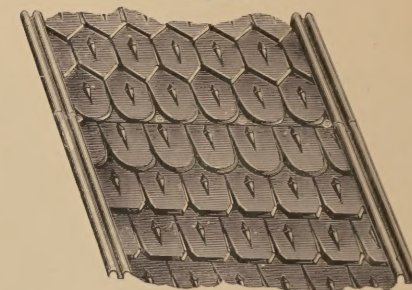


Fig. 120



Shows Cross Joint made with Beaded Side Laps.

The Cross Joint of this Lap is made by lapping the bottom course over the upper course of lower sheet and painting between the plates, then nailing, using lead washer under nail head. Figs. 118 and 122, page 34.

Cluster Tile with standing seam edges and metal cleat fastening. See Fig. 121, page 34. Ridging, pages 37 and 38.
Flat Margin Lap or Double Beaded Edges for Mansards. Sheets 1 to 10 feet long, 25 inches wide.

AMERICAN ROOFING PLATES

USED EXCLUSIVELY FOR ROOFING

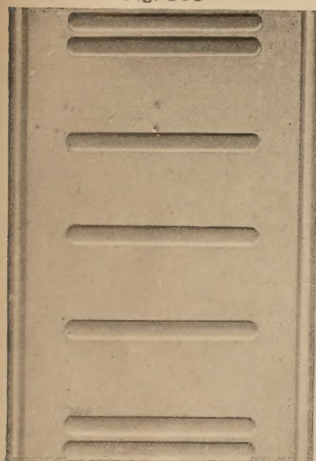
Made from Galvanized or Painted Steel Stock, and only in the Sizes and Gauges Shown and Named

Special Gauges Made to Order, Painted or Galvanized, viz: 22, 20 or 18 Gauge

Fig. 377

AMERICAN TILE

Fig. 305



Size of Tile, $25\frac{1}{4}$ inches by 36 inches, out to out. Lay to the weather 33 by 24 inches, lapping at sides one corrugation, and 3-inch lap at cross sections, or two ribs. 24-inch by 33-inch surface in each tile after applying.

Weight of Galvanized Tile. Fig. 305:

Gauges, 28—27 —26—24

Lbs., 5— $5\frac{1}{2}$ — 6— $7\frac{1}{2}$

Fig. 2



Wire Nail
 $1\frac{3}{4}$ to $2\frac{1}{2}$ inches.

Fig. 1



Lead Washer
No. 8, for Large Nails.



(28, 26, 24, 22, 20 and 18 Gauge) Black Sheets. Either style. Made from Painted Steel or Galvanized when desired. To cover 100 square feet of roofing surface it will require $18\frac{1}{2}$ tiles of any gauge.

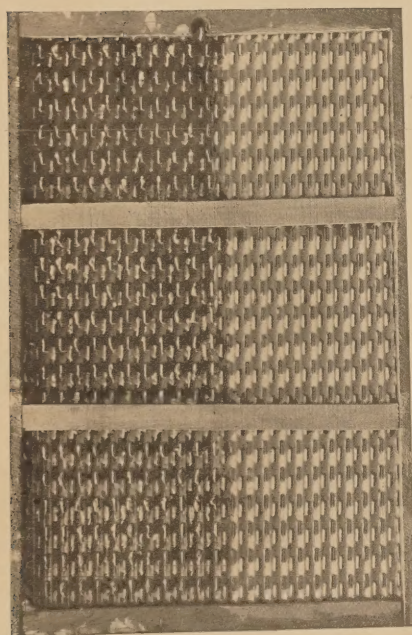
In applying, commence at left hand corner of roof. Lay from eave to comb, nailing lap sides every 10 or 12 inches through corrugation on top, using lead washer under each nail head. Cross seams nailed on top of bottom corrugation. See page 61.

No. 1



Shows side to apply mortar.

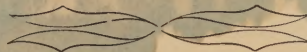
No. 3



Shows mortar keying device, reversed side, next to studding.

Sagendorph's Patent Burr Lip and Ribbed Metal Lath

PATENTED MAY 28, 1889; FEB. 24, 1891



Lath Face

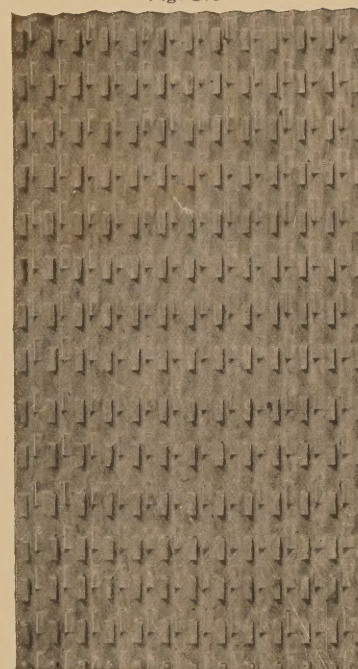
No. 4

Mortar Finish



Shows face of plaster and lath side to apply mortar.

Fig. 319



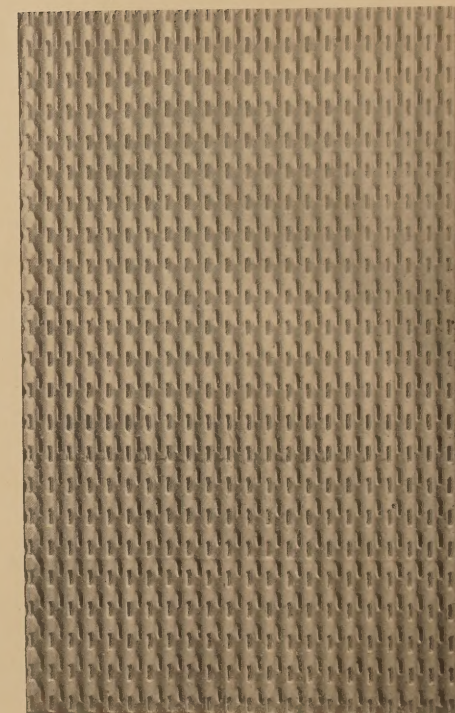
Shows side of lath to apply the mortar.
Metal Lath, 30x96 inches. 10 sheets to bundle.

No. 2



Reversed side, showing locking mortar keys between lips and ribs; mortar does not fall off or waste.

Fig. 319



Shows sheet metal lath. 30 x 96.

BURR METALLIC LATH

In plastering the first coat the mortar fills the opening, crowds through and interlocks with the opposite key, fastening securely without cutting off and dropping. The corrugations are higher than the keys, which are thus protected against pressure that might close them. Sagendorph's Metallic Lath is patented and is rapidly proving itself the best lathing material on the market. We manufacture it ourselves and can fill all orders promptly and well. This lath is corrugated lengthwise with the sheet, and is so stiff that it will not spring under the trowel, and can be covered more rapidly than the wooden lath. Having a double interlocking key, the mortar will fasten to it more firmly and with less waste than to any other style. It will not curl or sag under the weight of plaster, as is the case with the wire lath and other makes which have not sufficiently heavy corrugations to insure stiffness. Our lath can be used on partitions having studs of 20-inch centres, or more, depending upon the requisite strength of the partition; can be used on channel bar or rod studs, and plastered on both sides by letting the plaster keys harden after the face is plastered, then using them as keys for the opposite side; the plaster fastens securely to them, thus forming a firm, vermin and sound proof partition, not over two inches thick, saving valuable space in construction and rendering the partition fire proof. The lath should be laid with the corrugations parallel to the floor, the tongues against the studs. Price, 45c. per square yard.

